

The magazine for
AUSTRALIAN
AMATEURS

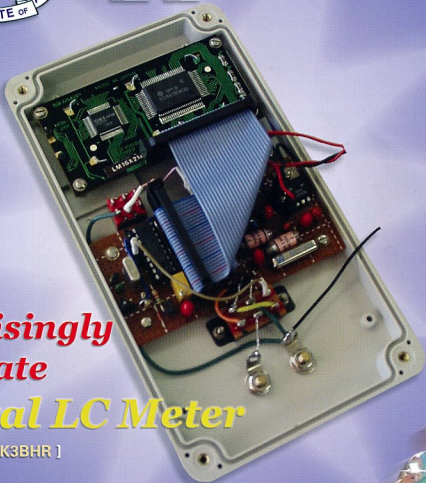


April 2004
Volume 72 No 4



Amateur Radio

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The surprisingly accurate Digital LC Meter

[Phil Rice VK3BHR]

- Many unqualified "Amateurs" – the recruitment challenge
[Jim Linton VK3PC]
- A simple TV-aligned crystal frequency
[Drew Diamond VK3XU]
- A dummy load and power meter for HF
[Jim Tregellas VK5JST]
- PCI sound card interface
[John Hodgkinson VK2BHO]

ISSN 0002-6859



*The pressure
is ON
2003 ARDF
CHAMPIONSHIPS*

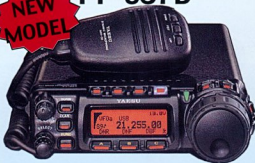


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Amateur Radio

Volume 72, Number 4
April 2004

The Journal of the Wireless
Institute of Australia
ISSN 0002-6859

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"Hamads" Newsletters Unlimited
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Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

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Our Cover this month

"With the aid of a little easily copied FREE software, you can have your own (possibly) accurate inductance and capacitance meter." See article on page 4 by Phil Rice VK3BHR

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal

Office (until stocks are exhausted), at \$4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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Editorial comment

Colwyn Low VK6UE

The John Moyle Field Day had a great weekend!

I had an interesting expedition to my favourite Hill and some gear worked and some did not. The batteries kept up until I had had enough of the cold wind from the south. I hope the rest of you who ventured out had a good time. Some reports and pictures next month.

Spirited debate

I have received several letters and documents which are too large to place in AR but I would bring to your attention the proposal on new amateur licensing from Sam Voron VK2BVS, 2 Griffith Ave, Roseville, NSW 2069, phone 02 94171066, Email svoron@hotmail.com.

Interference problems

I also received a newspaper clipping from the Mansfield Courier describing problems with vehicle locking systems in proximity to shop barcode scanning equipment and a mobile phone tower which were presumably producing interaction product frequencies in the vehicle locking system passband.

The big topic at the Convention

The Federal Convention is nearly with us and the big topic will surely be the proposal for a Federally based structure for the WIA. Already the state structures are feeling threatened and the problems of who will control what are being raised. Now to a degree the states which have worked hard to buy property should control and benefit from their diligence. I would have thought that as the Divisions were going to continue they could continue to hold the assets that they currently control. After all owning property is not WIA core business. This is the realm of local clubs. It would be a shame to see the chance of

creating a truly national Amateur Radio Society in Australia founder on these reefs of state rivalries.

What to do about unlicensed operators

I have had several emails re unlicensed operation in Australia. It would appear that there are a number of people who think they can invent Australian calls and use them as they please and others who ignore the detailed requirements of our licensing system. The only way to deal with this problem is to ignore the operators when they appear on our bands. If they are operating their own private nets then log the information, call signs used, time, frequency, type of traffic and pass it to our Intruder Watch coordinators and the ACA.

What all contributors should know!

One final thing we have changed the addresses for receipt of material for publication in Amateur Radio Magazine:

- Technical and general articles, that is the material which is mainly in the front of the magazine goes to "The Secretary, AR Publications Committee, 3 Tamar Court, Mentone, Victoria, 3194 or to armag@optus.com.au. We can accept whole documents electronically. Hard copy should be accompanied by an electronic copy on disc if at all possible. We can only handle some drawing program formats so please check before sending circuit diagrams and drawings electronically.
- Short articles of immediate interest, club news, Over To You letters come directly to the Editor.
- Ham ads and all advertising go directly to Newsletters Unlimited. All addresses on page 1



<http://www.wia.org.au>

Federal WIA AGM

I am writing this month's notes just a week or so before the 2004 WIA AGM. As such it is a very frustrating time to have to write them. At this time I really cannot predict the outcome of the current round of discussions amongst divisions and members of the institute on the question of whether we should move to a national body or remain in our current structure of a federation of separate divisions. Many of you will by now have had a chance to read and discuss the proposed National constitution. I also commend you to keep a close eye on the Federal web site for updates and additional discussion documents. Even if the

outcome of the AGM is to move towards a national WIA then there will be a large amount of work that needs to be performed in transitioning the current divisional structure into a national body so you can expect to see a constant flow of documents appearing on the web site.

Having performed the role of WIA Federal President for the last three years my own mind is firmly made up and for me a united national body is the only way to go. I say this for a number of reasons. These include the difficulties of financing the Federal group as well as finding the people to support the current Federal functions (this being in

addition to the volunteers needed to support the current WIA divisions and local radio clubs). However for me the main reason for seeking a national body is to enable us to get on with the business of promoting amateur radio as the hobby of choice for a range of aspiring engineers and professionals. A truly national WIA, in conjunction with an entry level licence, will be ideally placed to market amateur radio to a wide cross section of the community and demonstrate the immense value that the hobby has to contribute to the overall intellectual capital of Australia.

Other activities

The last month has also kept me busy with a number of other matters. The month started with the annual trip to the Wyong Field day. This was for me as usual a great day out. This year was even more special in that I had the opportunity to take receipt of a Yaesu FT817 from David Benchoam of Benelec Electronics. David had kindly agreed to donate the FT817 to the WIA "Welcome to HF QSO Party". With both David and the winner, Norman Partridge VK2TOP, present at Wyong it was also a great opportunity to present the prize. Thanks once again to David and Benelec Electronics for offering the prize. I hope to have some pictures of the presentation in this or the next issue of AR.

At this time the last prize to be presented is on its way to John Sutton VK4TJS. John lives in Kelso in Far North Queensland and this ex-pom knows that as much as I might like to drop around to make the presentation myself, that Kelso is a little off the beaten track. I hope to be able to present John his FT100 from the Federal WIA at the AGM or failing that to arrange for the presentation to be made by a representative of the VK4 Division in the very near future.

Wyong was also an opportunity to meet up with John Dawes VK5BJE. John had approached me earlier this year to

examine options to develop a history of the WIA in preparation for its 100 year celebrations. In order to progress this matter I will be issuing a request for expressions of interest from anyone who would be prepared to undertake the research, data collection and writing of such an official history of the Institute.

Further losses in the 70cm band

On a less optimistic front I met earlier this month with the ACA to discuss the migration of amateur repeater links out of the 420-430 MHz band. As I alerted you to before Christmas this in preparation for the implementation of an upgrade to the Victorian Metropolitan Police radio network. On 15 March 2004 the Victorian Government announced the outcome of its choice of provider for this new service (refer to www.dpc.gov.au for a more detailed statement). This network upgrade is seen as a key part of the Australian preparations for the security of the 2005 Commonwealth Games in light of the current worldwide terrorist situation.

This loss of amateur spectrum continues a theme first encountered in VK6 where demand for spectrum for public protection purposes has entailed that the amateur community vacates part of the band to allow agencies such as the police, fire and ambulance access to

much needed spectrum to serve the increasing community demand for their services.

Finally this month I have been closely monitoring the situation with respect to various intruders on our bands. With the ever increasing pressure across Government to do more with less the ACA is finding it ever more difficult to keep up with the demand for investigations of violations to spectrum access. In order to ensure that the amateur spectrum receives a fair allocation of ACA investigation time the Federal WIA intruder monitoring group is investigating how we can better streamline the collection, analysis and reporting of intruder incidents. If we can collect this information in a consolidated manner and then ensure that when we approach the ACA that we only do so in cases where we are clear that a violation has occurred then we will be in a much better position to get results. If any of you are interested in this matter then I would be delighted to hear from you so that I can put you in touch with the group that is currently working on this.

Anyway I'd better bring this to a close since I still have a number of things to prepare for the 2004 AGM. 73s to you all and I look forward to hearing your comments, either directly or via the divisions. All the best in amateur radio

Ernie Hocking VK1LK

Cover story

A surprisingly accurate digital LC meter

Phil Rice VK3BHR

Lot 601K Durston's Road, Maiden Gully Vic. 3551
http://ironbark.bendigo.latrobe.edu.au/~rice

Why?

Several years ago, I built a "one transistor oscillator", which I used to measure small inductance values (by measuring the frequency of oscillation and applying the formula for resonant frequency of an LC circuit).

Following from the frequency meter project published in the September 2002 issue of AR, I wondered if I could combine the oscillator and frequency meter to make a direct reading inductance/capacitance meter.

I had seen an instrument that did exactly this on the web at <http://www.aade.com/lcmeter.htm> for \$120US and thought, "I'd like one of them".

How?

The AADE web site gave details of how their design worked and a circuit diagram. This led me to propose a design using their oscillator, but in a slightly different way. Like theirs, mine would measure the free running frequency of an LC oscillator, and then successively apply a known capacitance then the unknown inductor (or capacitor). After that, the maths used to calculate inductance or capacitance would be quite different. A brief play with the required formulas (see Fig 1) showed that it was COMPLICATED! At this time the maths all seemed too hard.

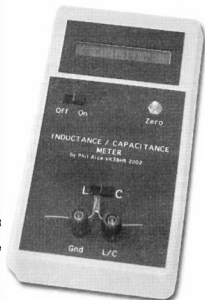


Photo 1 The outside

A lucky find!

Then I discovered Microchip Application Note - "AN575 IEEE754 Compliant Floating Point routines" (add subtract, divide and multiply). It didn't take long to load the code into a PIC 16F84, but the 32 bit floating point routines nearly filled the entire chip. This left no room for the frequency measuring, inductance/capacitance calculations and display formatting instructions.

At this stage, I found that I could use

Capacitance	Inductance
$F_1 = \frac{1}{2\pi\sqrt{LC}} \dots\dots(1)$	$F_1 = \frac{1}{2\pi\sqrt{LC}} \dots\dots(5)$
$F_2 = \frac{1}{2\pi\sqrt{L(C+C_{cal})}} \dots\dots(2)$	$F_2 = \frac{1}{2\pi\sqrt{L(C+C_{cal})}} \dots\dots(6)$
$F_3 = \frac{1}{2\pi\sqrt{L(C+C_u)}} \dots\dots(3)$	$F_3 = \frac{1}{2\pi\sqrt{(L+L_u)C}} \dots\dots(7)$
$C_u = \frac{\left(\frac{F_1}{F_3}\right)^2 - 1}{\left(\frac{F_1}{F_2}\right)^2 - 1} \times C_{cal} \dots\dots(4)$	$L_u = \left[\left(\frac{F_1}{F_3}\right)^2 - 1\right] \times \left[\left(\frac{F_1}{F_2}\right)^2 - 1\right] \times \frac{1}{C_{cal}} \times \left(\frac{1}{2\pi F_1}\right)^2 \dots\dots(8)$

Figure 1 The equations

the Microchip 24 bit Floating Point code and, by being a little careful, could fit it all in and achieve a numerical error of less than 0.1%. Overall accuracy would then be limited by the oscillator behaviour and one "calibration capacitor".

The hardware!

This is a combination of two designs.

The oscillator design originally came from the AADE LC meter web page.

It uses an LM311 comparator with positive feedback to make a parallel LC oscillator with digital output. It seems to oscillate readily over a wide range of L and C values. Hopefully, it follows the "well known formula for resonant frequency".

The frequency measuring part is a cut down version of the September 2002 Frequency Meter article. The original idea for this came from the web pages of Eamon Skelton, EI9GQ.

The software

This was the hard part (and the fun part) of the project. Luckily, it's easy to duplicate and the copies work as well as the original. You can get copies of the "hex" code from the web page <http://ironbark.bendigo.latrobe.edu.au/~rice/lc/index.html>.

The program takes two measurements when "zeroed". First the oscillation frequency is measured using only the internal inductor and capacitor (F1).

Then a standard capacitor ($C_{cal}=1000 \text{ pF} \pm 1\%$) is added in parallel and the frequency is measured again (F2).

The software then goes into a repeating loop where it measures the frequency of the oscillator using the internal inductor and capacitor and whatever unknown external inductor or capacitor is connected (F3).

Some serious maths (formulae 4 and 8) is performed each time to calculate the unknown external component value. This value is then scaled in engineering units and formatted for display.

As with the earlier frequency meter article, I can provide programmed chips for those people who don't want to get diverted into microcomputer programming.

Getting started

To aid initial troubleshooting, the PIC program includes a test mode, which is entered by shorting link LK1 and pressing "zero". The PIC will now repeatedly count oscillator cycles for 0.1 second and display the result. With just the 82 mH inductor and 1000 pF in circuit (no external component, no calibration capacitor), the oscillator will run at about 550 kHz and the display will show around 55000. If the frequency is too high (anything over 655.350 kHz), the display will show "Over Range". If the oscillator isn't running, the display will show "0".

For best accuracy, the free running

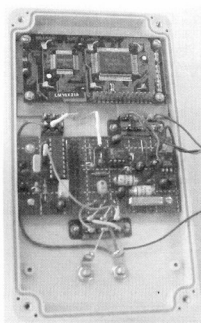


Photo 2 The inside without the ribbon cable to the display

frequency should be 10% to 15% below 655 kHz. If it is too close, it may accidentally overflow the PIC's internal 16 bit count. You may need to adjust the inductance to get the frequency right.

A second link, LK2, connects the calibration capacitor. The oscillator should then run at about 394 kHz.

Some LCD displays do not correctly display all 16 characters and need a little extra encouragement. When zeroed on

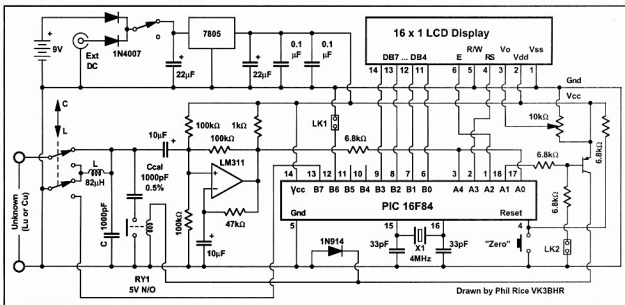


Figure 2 The circuit diagram

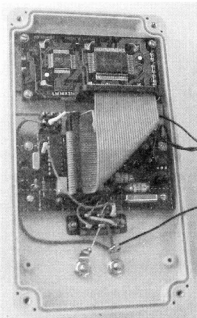


Photo 3 The complete inside.

the capacitance setting, the display should show "C = 0.0 pF". If your display shows only part of this, then tie pin 10 to ground. If the display shows the value (0.0) and the units (pF) then pin 10 should be left floating. Pin 10 has an internal pull-up so no external resistor is needed.

Operation

In practice, it's a bit like an Ohmmeter. For an inductor, just short the leads and press the zero button, then connect the unknown inductor. For a capacitor, zero it with the leads open, then connect the unknown capacitor.

The meter can be zeroed with an unknown component connected. For subsequent components, it then indicates the difference (+ or -) from the original component value. Great for matching parts!

How accurate?

Accuracy depends on the user doing the "right thing" and on the unknown component being of fairly high Q. The PIC's internal program relies on the setting of the L/C switch being appropriate for the component. Since all the PIC is doing is measuring the frequency of the oscillator, any strange component that allows the oscillator to work will be reported as an inductor or a capacitor depending on the L/C switch. For example a 22 ohm resistor is reported as a 3.14 mH inductor or a 119 nF (0.119 mF) capacitor. This isn't even remotely correct!

When the unknown component has high Q (as you usually want in a tuned circuit) AND the L/C switch is set correctly, the prototype generally shows errors of less than 1%.

I checked the accuracy of the LC Meter against an old Marconi bridge, for capacitors of 33pF to 0.22 mF. For inductors, I only checked values from 475µH down to 60µH. Below that value, the Marconi bridge was a bit "cranky".

While the LC Meter is self calibrating, errors depend a little on the components used in the oscillator LC tank (L and C on the circuit diagram) and on the "standard" capacitor (Ccal), which should be 1000pF to within 1% or better.

The worst errors occurred when using a ferrite bobbin style choke from a

switchmode power supply for "L". Here the error was less than 1% for capacitors below 3300 pF and 2% for inductors less than 475 mH. The error climbed to 3% for 0.22 mF capacitors.

Surprisingly, the best accuracy used a "moulded" choke scrounged from an old TV. Here, the error was less than 1% for capacitors less than 0.22 mF and less than 1% for inductors less than 475 mH.

In all cases, I used a 1000 pF styroal capacitor for the oscillator tank "C". A "greencap" would be a suitable substitute but a ceramic capacitor may not be a good choice. Some of these can have high losses.

I have no reason to suspect any strange non-linearities in the readings for low value components. Small component values are, in theory, directly proportional to frequency difference (when the part is added to the oscillator). The software inherently follows this proportionality. The only way I can verify this is to construct some small L/C tuned circuits and measure their resonant frequency - and I haven't got round to doing that yet.

Conclusion

With the aid of a little easily copied FREE software, you can have your own (possibly) accurate inductance and capacitance meter. With the worst possible set of components from the junk box, accuracy should be better than 3%. If you are lucky, accuracy should generally be better than 1%.

It's now possible to design a tuned circuit, construct it and have it resonate on the right frequency first time, every time.

References

1. The original idea and the oscillator came from <http://www.aade.com/lcmeter.htm>
2. The frequency measuring code came from "http://ironbark.bendigo.latrobe.edu.au/~rice" <http://ironbark.bendigo.latrobe.edu.au/~rice> also <http://homepage.tinet.ie/~ei9gg/stab.html>
3. Microchip's Web Site provided the Floating Point code essential to the working of the meter. See [http://www.microchip.com/-search for AN575](http://www.microchip.com/-search-for-AN575)

Something to look forward to in 2012

Christine Taylor VK5CTY

In June this year 2004, and again in 2012 there will be a transit of Venus. The planet Venus will cross the face of the sun. The transit this year will only be visible in the Northern Hemisphere but the one in 2012 will be visible in the Southern Hemisphere.

The transits of Venus only occur twice in about 8 years then not again for a hundred or so years but they are of significance to Australia because it was the Journey of Captain James Cook, to view such a transit that brought him to the Southern Ocean. Funding for

such an enormous journey, half way around the world was only available for a scientific expedition. There was no magical search for a 'path' across the oceans such as that which 'found' the Americas. Without the transit of Venus Australia might have remained mostly unoccupied for much longer.

If we are to 'view' a transit of Venus we must be careful to protect our sight, but there are safe ways to observe it. We have time to learn by the Northerners' experience later this year so we can do it even better.

ar

ar

Many unqualified "amateurs" – the recruitment challenge

By Jim Linton VK3PC
email: wlawic@wlawic.org.au

During discussion at both the IARU Region 3 Conferences in Darwin in 2000, and Taipei 2004, delegates considered the declining growth in radio amateur numbers that has been occurring in many countries.

No-one had a solution, except to agree on a valid suggestion that if each existing radio amateur generated a new ham a lot could be achieved towards slowing or arresting the decline.

One delegate at the Darwin conference profoundly remarked that "we simply do not know where our next generation of radio amateurs is going to come from". He was right, at that time, but now in the Australian context at least, there are identifiable potential sources of new recruits that could find an Entry Level licence attractive.

There is little doubt that a new entry point into amateur radio is of benefit. The British Foundation licence in its first year has been hailed a success by the Radio Society of Great Britain (RSGB) in encouraging new entrants into amateur radio. There is also a healthy increase in the numbers seeking to upgrade to higher grades of licence.

The American Radio Relay League (ARRL) also recently announced its support for the introduction of an Entry Level licence in the United States.

Wireless experimenters

The use of low powered licence-free 2.4GHz wireless LAN systems in Australia and overseas is relatively little known, yet quite amazing. In research for this article the author subscribed to two wireless email lists to see what was being discussed. The topics monitored included antennas, transmission lines, propagation and modulation.

Wireless hobbyists have set up microwave networks in capital cities and other major population areas, they hold meetings, share technical information and appear very much to have a self-help ethos. These groups are behaving not unlike amateur radio in many respects, and among their

members are in fact a few radio amateurs.

These are technically minded people and gauging by their email addresses many are employed in information technology or a similar field.

The existence of this strong group of wireless hobbyists throughout Australia is reflected in the WIA's proposed Entry Level licence including access to the 2.4GHz and 5.8GHz bands.

HF radio clubs

A number of radio clubs specialising in HF radio for travellers, mainly four wheel drive enthusiasts, exist in Australia servicing thousands of members, many of whom could be interested in expanding their interest in radio communications through an Entry Level licence.

One such club, VKS737, established in 1993, has a national network of base stations, three paid staff and many volunteer base station operators. The primary role of the network is to provide safety orientated HF radio communications for travellers in remote areas.

It is licensed by the Australian Communications Authority (ACA) to use five HF channels, which are:

Channel 1: 5.455 MHz, Channel 2: 8.022 MHz, Channel 3: 11.916 MHz, Channel 4: 14.977 MHz, Channel 5: 3.995 MHz.

Membership of the club allows use of mobile radios on those channels and is available for around \$70 a year. VKS737 claims a growing membership of

thousands throughout Australia. Monitoring its activity is easy because VKS737 provides a broadcast schedule across 13 hours of each day starting at 7.30am (AEST).

These broadcasts provide an opportunity for mobile stations to check-in and log their location, as well as broadcast information on the weather, roads, and parks. There are parallels with VKS737 and the amateur radio Travellers Net.

CB radio

Although not having the potential of providing a boom in new radio amateurs like it did in late 1970s and early 1980s, Citizen Band Radio could still easily provide a worthwhile yield of new radio amateurs.

CB radio consists of about 75% of operators who chase 27MHz DX, and many are quite serious communicators. The bad old days of widespread mindless "ratbags" on the 11 metre band is reported by a leading CB club in Victoria to be a thing of the past.

In fact there are some 35 active CB clubs throughout Australia and many more CBers who are not club members but enjoy being hobby communicators.

When the topic of amateur radio was discussed late last year at a major CB club meeting,

news about the removal of the Morse code requirement and the WIA's proposal for new Entry Level licence was met with much enthusiasm. All who were not already radio amateurs were eagerly awaiting the new licence.

One delegate ...remarked that "we simply do not know where our next generation of radio amateurs is going to come from". He was right, at that time, but now...there are identifiable potential sources of new recruits that could find an Entry Level licence attractive.

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The end of mandatory code tests on 1 January, 2004, has also resulted in some CBers (and others) renewing their interest in amateur radio and studying for the Novice-Limited licence because of its HF privileges.

A new development called "eqso" is taking off overseas among users of low powered licence-free PMR (personal mobile radio) transceivers operating on UHF (not in Australia), and this too promises benefits for amateur radio.

The eqso system is a VOIP (Voice over internet protocol) similar to IRLP now widely used in amateur radio to link voice repeaters via the Internet. Two Australian CB repeaters, one in Melbourne and Brisbane, are included on an international list of eqso nodes.

Promoters in Britain claim that the exposure to long distance communications provided to PMR users through eqso has sparked additional interest in amateur radio.

Potential recruits

Microwave wireless experimenters, HF radio hobbyists, CB operators, ocean-going yachtsmen, VHF/UHF scanner listeners and others could be very worthy targets of recruitment messages for the new Entry Level licence.

With the new licence, that could begin in 2005 to provide access right across the spectrum, it is likely to be seen as an attractive or desirable step for these "amateur" users of the airwaves to enter the world of ham radio.

They will of course need to hear about the "NEW AMATEUR RADIO". In the absence of strong marketing support from the Federal Government or the Australian Communications Authority, or corporate sector financial backing, it will be totally left to the Wireless Institute of Australia, radio clubs and individual radio amateurs to make it happen.

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A dummy load and power meter for HF

Jim Tregellas VK5JST

14 Sheringa Drive, Morphett Vale, SA 5162

Not everyone can (or wants to) afford that paragon of dummy loads, the Bird wattmeter, or for that matter the rather cheaper but still extremely good dummy load sold by Dick Smith. And getting your hands on the parts to build the dummy loads in the ARRL handbook isn't too easy either. But here is a dummy load and power meter, which you can build from standard parts, which covers the HF range and doesn't cost an arm or a leg.

Target specifications for the load/power meter were:

- (a) VSWR <1.25 from 1 to 30MHz
- (b) Power handling (50% duty cycle or 30 second max)
500 watt RMS or 1kW PEP (two tone SSB testing only)
- (c) 50 ohm sampling output for a frequency counter or oscilloscope
- (d) PEP power indication

After a lot of thought it was decided that these specifications could be best met by the forced air-cooling of a multi resistor array. Although the fan necessary is an additional expense, in the author's opinion it is a far better proposition than the alternative of immersing the resistors in an oil bath with the attendant problems of spillage and fire hazard.

Initial testing showed that an array of 134 x 6800 ohm 1 watt carbon composition resistors would be satisfactory. These were formed into a roughly square array of resistors standing on end, and sandwiched between two conductive planes (epoxy PCB), one of which was drilled with large holes so that air could be forced past the resistors. The near square shape was selected because a large number of resistors could be mounted around its perimeter, while the stray capacitance could be minimized and the air flow maximized by drilling a large number of ventilation holes in the lower PCB. The stray inductance of this shape is also very low because the conductive planes are short and fat, and the resistors have near zero lead lengths. Best of all, the planes are also effective heat dissipaters. The fan used for cooling was a 240 V 14 watt 80mm diameter unit. A 12 Vdc fan was not used because its semiconductor driven motor will almost certainly misbehave in the high RF fields within the dummy load case. This set-up was

extensively tested at 80 metres and worked well.

The next design step was to establish how the design performed as the input frequency was varied. For this I am much indebted to Keith Gooley VK5OQ for his out of hours testing of the dummy load using a Hewlett Packard network analyser.

The results were interesting. As can be seen from figure 1, the VSWR linearly increases with frequency, reaching 1.5 at 30 MHz. Analysis shows this is due to the effect of a shunt capacitance of 48 pf (8 pf between the conductive planes and 40 pf due to the resistors).

Now if the dummy load is being used to test a conventional high power tube linear amplifier with its output tuning and loading capacitors, the 48 pf has no significance provided the leads between the amplifier and load are kept short. It simply becomes part of the loading capacitance at the amplifier output, which is never smaller than 150 pf at 30 MHz, even in amplifiers requiring quite high values of plate load resistance. The load therefore looks like a pure 50 ohm

resistance and is useful to well beyond 30 MHz unmodified.

The situation is entirely different if the load is attached to the wide band FET or transistor output amplifier found in a typical modern transceiver. Here there is no mechanism to swallow up the effects of the stray capacitance, and steps must be taken within the dummy load to compensate for it.

Now a parallel circuit can be mathematically transformed to an equivalent series circuit at any single frequency. Doing this at 50 MHz generates a circuit of 31.87 ohm in series with 132 pf, which is equivalent in its effects to the parallel circuit of 50 ohm and 48 pf. If we use a series inductor to resonate with the 132 pf at 50 MHz, we are left with a pure resistance of 31.87 ohm at 50 MHz and a nearly pure but somewhat larger value of resistor at frequencies lower than this. (At very low frequencies the equivalent series circuit is 50 ohm in series with a near infinite capacitance). Some work with a Smith chart shows the VSWR up to 30 MHz should not exceed 1.2, and a little

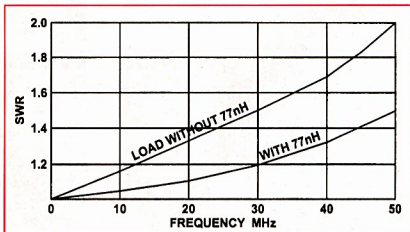


Figure 1

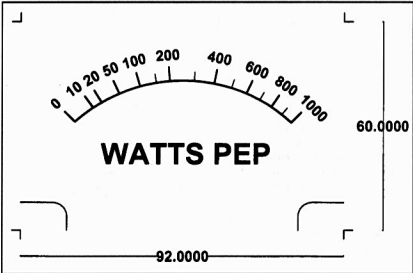


Figure 2

calculation shows the inductor value required is 77 nano-henries. Further testing on the network analyser by VK5OQ showed that all this theory works! (see figure1). The engineering of our dummy load thus simply becomes making up the resistor array, and then frequency compensating it with an inductor which will resonate with 132 pf at 50 MHz. A dip meter is used to

make the inductor, and the NPO ceramic capacitors used to make up the 132 pf for inductor testing should have near zero lead lengths. The wire gauge selected for the inductor should reflect the 500 watt rating of the load (2.5mm). Also note that only the 1 watt resistors specified should be used, and the physical layout should be closely identical, as these two things determine the 48 pf of stray capacitance, which we are compensating with the inductor.

Assembly and calibration

First drill both PCBs as per the drawings, and then drill the back panel of your metal box to match the hole pattern in the bottom PCB. Now solder the four brass nuts to the lower PCB using steel screws to temporarily hold the nuts in position while soldering occurs.

Next, bend the bottom lead of each 6k8 resistor at right angles to the resistor axis and as close to the body as possible. Form the inner rectangle of resistors by inserting the straight resistor lead of each 6k8 through the hole in the upper PCB. When this lead is soldered to the upper PCB surface, the resistor body should be hard up against the PCB. The bent lead should face outwards and all resistors should be equally spaced and at right angles to the PCB surface. This assembly is then soldered to the lower PCB, and the excess resistor leads trimmed off. Now add the outer row of resistors one at a time, soldering these into final position. Do not be tempted to assemble both resistor rows at once – it doesn't work. You should end up with a neat assembly where the resistors have virtually zero lead lengths and the PCBs are spaced 13 mm apart. The detector assembly and sampling resistor network for the CRO are added in space, at the edge of the resistor array. The only comment necessary on the remaining

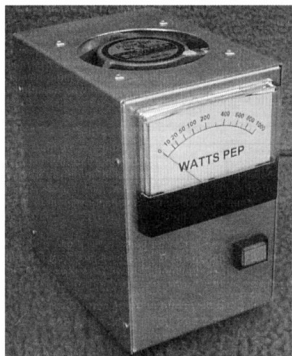


Photo 1

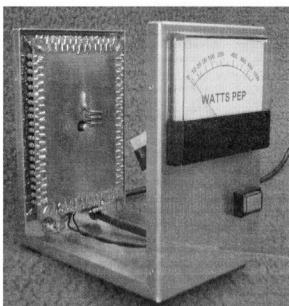
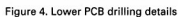


Photo 2



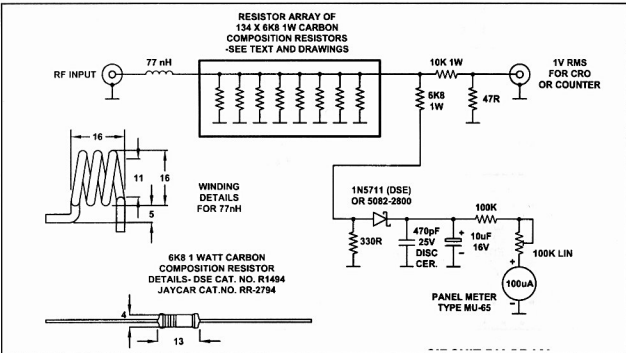


Figure 5. Circuit diagram 1kW PEP power meter and dummy load

assembly is to make sure that the mains supply to the 240 V fan is both safely wired and securely earthed to the metal case.

If the assembled array has a resistance lower than 50 ohm due to tolerances, adjust it to exactly 50 ohm by removing 6k8 resistors until the value is right. Replace the removed resistors with

physically identical 1 M ohm resistors, so that the air flow through the array is not upset. Alternatively, if the resistance is high, add a few resistors around the perimeter keeping their lead lengths short.

Calibration is simple. So the power meter will indicate watt PEP, a very long detector time constant is necessary. This is selected so that the carrier peak voltage in between modulation peaks is stored without much ripple, and the lowest frequency at which these peaks are likely to occur is 150 Hz for speech or 700 Hz or so for two tone testing. If we instead assume that peaks occur at a 50 Hz rate and lengthen the time constant accordingly, we can calibrate the load using conventional 50 Hz ac mains power and a DVM. To calibrate the load proceed as follows:

Find a reasonably heavy 50 Hz power transformer capable of

supplying an ISOLATED output voltage of between 50 VRMS (50 watt) and 120 VRMS (288 watt) to the 50 ohm load. Measure the AC voltage across the load terminals with your DVM, calculate the power in the load from $V^2/50$ ohm, and adjust the trim pot until the meter reads correctly - DONE!

Finally, a few words on power measurements. This form of metering measures the RMS power existing at the peak of a modulation envelope (watt PEP) and consequently is useful for two tone SSB measurements, peak audio SSB measurements, modulated DSB envelopes, modulated AM, or any other measurement where the RF carrier envelope varies cyclically between a maximum and minimum e.g. Morse code. For transmission modes where the height of the envelope does not vary eg FM, un-modulated AM, single tone SSB, the metering simply indicates RMS power.

Note that the load has a maximum rating of 500 watt and can only be used to its 1 kW limit for two tones SSB testing where the average carrier power is one half of the peak envelope power. Single tone testing to 1kW has not been tried (PEP = average power) although the load will probably survive quite happily for brief periods.

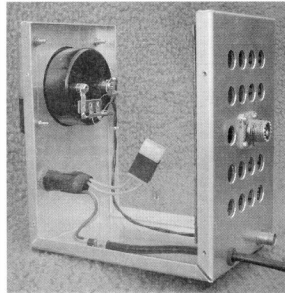


Photo 3

IARU Region 3 ARDF Championships

By Jim Linton VK3PC
email: wiavic@wiavic.org.au

Amateur Radio Direction Finding (ARDF) also known as radio orienteering or radio sport has an active following of thousands throughout the world. Some enjoy it at a local level while others also participate in major championships.

Each International Amateur Radio Union (IARU) Region holds its own regional championships. The latest such event was the 5th IARU Region 3 ARDF Championships hosted by the Wireless Institute of Australia late last year at Ballarat, Victoria.

Making the event not only possible, but a great success, was a team of some 40 volunteers who organised and ran the show. They included volunteers from the Victorian ARDF Group, Ballarat Amateur Radio Group and the Victorian Orienteering Association. WIA Victoria sponsored the championships.

Ballarat University's Mt Helen campus provided an ideal venue. The ARDF events were held in surrounding countryside while the campus provided accommodation and meals.

IARU Region 3 which encompasses

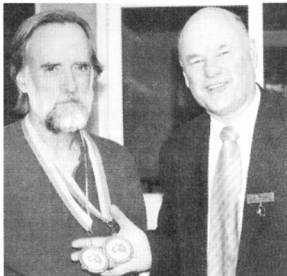
Asia and Oceania, had 59 male and nine female competitors from the Chinese Radio Sports Association (CRSA), Japan Amateur Radio League (JARL), Korean Amateur Radio League (KARL) and Wireless Institute of Australia (WIA).

Guest competitors are always welcome. This time they included a young team from Kazakhstan, and a senior competitor Robert Cooley KF6VSE (ARRL).

The Kazaks took out every division they competed in and won a swag of medals but were not eligible for medals in Region 3 events.

Robert KF6VSE, also ineligible for Region 3 events, won two gold medals in the Super Veteran category for men 60 years or older requiring the finding of three transmitters. In the 2m event he came in seven minutes ahead of the second place-getter and completed a 5.6km course in the 80m event in a blitzing speed of 1:15:22.

There was disappointment that a team of 13 from the Mongolian Radio Sport Federation



The Mayor of Ballarat, Cr David Vandy was amazed at the athletic ability shown by double gold medalist Robert Cooley KF6VSE.

(MRSF), who are known to be very competitive, did not arrive due to difficulties in obtaining visas.

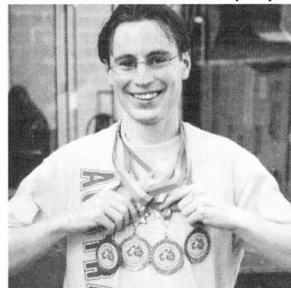
In line with tradition the teams representing six radio societies (countries) carried flags and banners while marching in their colourful uniforms to the opening ceremony. Each was welcomed and subjected to much photograph taking.

Before the ARDF events begin all competitors had a briefing session. A key message given to them was to watch for holes in the ground – old gold mine shafts 50 metres deep.

Another no-go area during the competition was a rifle range. Although a few competitors strayed into it, there was no shooting practice happening.



*more
pictures
inside
back cover*



After a relatively short training session due to injury, nervousness and making a few mistakes during events, Adam Scammell VK3YDF is all smiles with four gold medals.



A few snakes were also out in the hot weather and the volunteers manning the transmitters for up to four hour shifts had to contend with mosquitoes.

Their job was to sit in the bush quietly with the well hidden transmitter, sense an approaching competitor by their footsteps, and usually only getting a glimpse of their antenna and face before heading off in search of the next transmitter.

ARDF requires knowledge and practice in radio wave propagation, taking precise bearings, map reading and the physical attributes of an athlete.

Each group of competitors was manoeuvred through a complex start before being permitted to escape at five minute intervals on a lengthy corridor that prevented them seeing the direction in which other competitors had headed.

Competitors in most events need to find up to five transmitting control points using direction finding techniques in a 140 minute time limit. If not all five points were found it was better to reach the finish within the time limit and not risk your team's score.

bush, or as he put it – "I went bush-bashing, the competitor followed, I escaped but he had difficulty getting out of the scrub."

A diverse range of DF receivers and antennas was used by the competitors. After the good showing by the WIA team some of our local ARDF experts were likely to be selling a few locally made units.

There also was plenty of social activity including boomerang throwing that thrilled the overseas visitors.

On a rest day during the championships, the visiting competitors were treated to a taste of local culture at the Ballarat Wildlife Park and Sovereign Hill. The day included an Aussie barbecue lunch.

A highlight of the whole event was the closing banquet with amusing entertainment indoors, and some whip-cracking demonstrations outside, from the Blackberry Jam Australian bush band.

A number of those at Ballarat have begun their plans to take part

One member WIA team member found the going hard with a fast competitor hot on his heels. His tactic on that occasion was to head for the

in the ARDF World Championships to be held in Brno in the Czech Republic September 7-12, 2004, and the next IARU Region 3 championships in 2005 to be organised by the JARL.

Aussies win gold

Adam Scammell VK3YDF won two gold medals for both the Open Men's 2m and Open Men's 80m events. Adam's gold medal tally was four with the addition of WIA team wins in both of these events.

The open 2m men's event result was Adam VK3YDF first, Bruce Paterson VK3TJN second, and Tony Langdon VK3JED in 5th place. That won the team a gold medal.

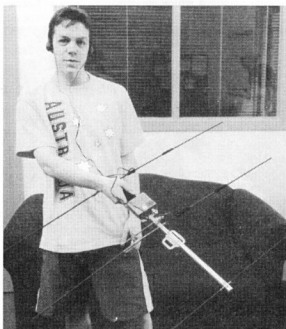
The fiercely competed Open Men's event on 80m was another gold win for the WIA team of Adam VK3YDF who won individual gold, Mark Diggins VK3JMD silver, Tony Langdon VK3JED Bronze, and Doug Canning VK3JDO in 9th place.

The Veteran Men's 2m event team of Ian Sterling VK3MZ and Dennis Haustorfer VK3BQZ won the silver medal. Despite no placings in this event, the medal was still scored, with Dennis making the finish line by a narrow margin of only 21 seconds.

The Super Veteran Men's 80m event



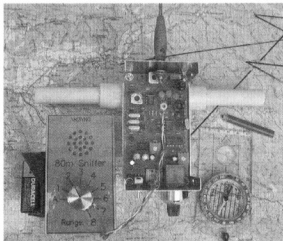
IARU Region 3 Director, Peter Naish VK2BPN presenting a medal to Nikolay Tarassov of Kazakhstan (Jack Bramham VK3WWW and Mark Diggins VK3JMD in the background).



One of the WIA junior team Nathan Wyss checks out an ARDF sniffer ready for action.



Producing the results and allocating medals was a team effort with Greg Williams VK3VT on the computer, Jack Bramham VK3WWW (standing), Bruce Paterson VK3TJN in deep thought and Andrew McCole VK3KIR.



The 80m sniffer by Bryan Ackerly VK3YNG that has attracted international interest.



On the winner's dais, WIA team members Sue Diggins VK3LSL, Liliya Glushchenko.

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achieved an individual bronze medal for Michael Hubbert (WIA).

The Senior Women's 2m event also saw WIA win gold, after Liliya Glushchenko winning individual silver and Sue Diggins VK3LSL scored 4th place.

The Senior Women's 80m event was another team gold medal for WIA – with, Liliya Glushchenko taking out silver and only 18 seconds short of a gold medal, and Sue Diggins VK3LSL in 4th place.

In the Junior 2m event, Rob Fell (WIA) who had only previously attempted one ARDF event, achieved a 14 minute lead from his nearest rival, Yuta Terui (JARL)

and won individual gold. This event required competitors to locate up to four transmitters.

Nathan Wyss (WIA) and David Hudson (WIA) came in 4th and 5th respectively. The WIA junior team won the silver medal based on the best two results of three team members.

The Aussie juniors could not compete in the 80m Junior event held on a weekday due to school commitments.

The full results can be found on the Victoria ARDF Group website www.ardf.org.au

Silent Key

Ted (Edmund Charles) Roberts VK9QK, VK2QN, VK4QI, VK1QI

Ted Roberts passed away on 25th January 2004 following a long illness. I much regret not having met Ted a lot earlier than I did.

The circumstance of our meeting was that Merv Deakin, VK4DV, asked me to visit his old mate Ted who was now living in a retirement home in the ACT. Ted had recently relocated from Rockhampton to the ACT to be near his family. Ted was not in good health, he was on oxygen 14 hours a day but he

welcomed my invitation to attend our regular 2nd and 4th Tuesday Old Timers lunch time get togethers at the Farrer Ham Shack.

Several of us got to know Ted quite well at these meetings and we all enjoyed his tales and shared his technical knowledge. Ron Graham VK4 BRG tells me we all missed out on Ted's forte "Home Brew manufacture of Ham gear". This made me more sorry I had not met Ted many years earlier.

Prior to joining the RAAF in 1938 Ted had served in the Militia. In the RAAF he was trained in a number of areas, including radio. When he was demobbed he re-entered the civilian workforce as a technician.

The ACT Division of the WIA and its Old Timers Group wish to extend their heartfelt sympathy to Ted's family and friends.

John Clare VK1CJ

The IPHG is two years old

On March 18, 2002 the International Pharmacists Ham Group (IPHG) was originated by two Italian pharmacists who were Amateur Radio Operators. Their aim was to promote radio-initiatives and establish friendship among colleagues from different countries and to lend a hand when necessary and if possible to people who need help. Today, after two years the primary core of about 20 has grown to almost 200 Pharmacist Hams in over 40 countries and all the Continents.

The IPHG members co-operate with the Medical Radio Council and exchange information. Help via the radio has been extended to some African Missions. The Group has also created some awards, free of cost, for OM/YL and SWLers. If you are a Pharmacist and interested in learning more about this group look at: www.malpensita.it/iphg



Special callsign for PI4AA

to celebrate their 75th year of activity in the air

Remy F.G. Denker PA3AGF
Evert Beiter, PA3AYQ
Email PA3AGF@AMSAT.ORG

From May first till May 16th the clubstation of the VERON operating under the call PI4AA will celebrate 75 years of activity on the air. They are granted to use the special call PI75AA to commemorate this special event.

During the 1929 "Radio Salon" in Scheveningen a local club station was granted to use the callsign PA0AA. This was even before the official radio exams in The Netherlands took place.

This unique occasion will now be commemorated with many activities.

PI75AA will be on the air during this and transmissions in RTTY, PSK and Slow Scan will take place daily.

It is planned to broadcast the complete report as put together during the "Radio Salon". So you will now hear what happened 75 years ago. All photos taken at that time will be transmitted in slow-scan.

In the end you will have a very unique document transmitted in a very unique mode.

From May 1st onwards all previous co-workers of PI4AA and staff will be on the air with the special call PI75AA either on VHF or HF from their own

shack. Every QSO made will be confirmed with a special QSL card.

More information can be found on: www.veron.nl.

Schedule:

1 - 16 May 2004 PI75AA QRZ for reports. All modes, all frequency. Special transmission PI75AA QTH LEUSDEN JO22QC

10 - 16 May 2004 every day 20.30 - 21.30 GMT

For Europa: freq. 3.603 MHz

Outside Europa: freq. 14.120 MHz. Mode USB, PSK, RTTY

20.30 - 21.00 Antenna direction VE - W - PY

21.00 - 21.30 Antenna direction VK - JA

See you on the band.

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| | |
| ● RG58: B80-006 UHF connector (M) | @ \$7.65 each |
| ● RG8/213: B80-001 UHF connector (M) | @ \$8.80 each |
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A bouquet for Echo Link

Kingsley Savage VK5BHP
VK5BHP@bigpond.com

I feel impelled to pay a tribute to the superb program, Echo Link. When I first downloaded it, I was most impressed that it worked well immediately with no tweaking required. After the first "wow" reaction subsided, I realised that here is a program that opens a whole new dimension to my "ham" activities, and gave some thought to just where it would fit in with my on air pursuits.

I decided that because of its flexibility I would not use it in my ham shack, which I reserved for on air skeds only. Echo Link is a luxury I reserved for 2 or 3 nights a week while sitting comfortably in my lounge chair with my 15" laptop computer.

As I have prostate cancer, during the last few months I've been hospitalised twice, the last in an emergency situation, but I still had time to grab my "complete entertainment centre", (my laptop computer), as I left home. Before even undressing in my room, my first priority was to put a dual adaptor in the phone line for my Internet connection. At home I have Telstra ADSL Broadband, but in hospital I "borrow" my daughter's Telstra dial-in number and password, not forgetting to add a 0 and comma prefix. ("To get an outside line dial 0").

An hour after returning from "theatre" I was having a good chat with my friend Chris, VK5PN who at that time was in Perth on his way around Australia. I simply opened up Echo Link, connected to the VK6RLM repeater and there he was, speaking from his car, as though he was sitting on my bed. We both agreed that this was even better than our usual 20 metre daily sked! This repeater is obviously well monitored because I was hard pressed to even get time to eat my lunch. The first call was from a VK6 who was driving his mother to a hospital to visit his sister, and the next was WA7FMP who said it was 3am over there and as he couldn't sleep he decided to find someone "Down Under" to talk to!

For the 5 days I was in hospital I had a wonderful time with Echo Link talking each day to my friend Bob, VK3PT, and

I made many other new friends from every corner of the globe. It was difficult finding time for emails etc. Most were quite interested in the fact that I was talking to them from my hospital bed. The nurses were amazed at just how clearly the voices came in from people overseas, when I removed the earphones so they could hear. One question, which arose more than once, was "why doesn't Adelaide have a major repeater connected to Echo Link?" Now there's a challenge for someone!

If you wonder whether the hospital approved of computers on the Internet, I have to admit that my policy is, "if you don't ask, you won't get a refusal", and it has worked out well so far. The switchboard girl phoned one day and said, "here are several messages for you, because you seem to be on the phone quite a lot!"

Echo Link is the perfect communication solution for amateurs in locations where it is difficult to erect antennas, such as for those of us who, with advancing years, have moved into retirement villages, nursing homes, etc, and as I can certainly testify, also for those of us in hospital!

There are some who frown on Echo Link as "not radio", but I think we should all consider our wonderful hobby as "communication by any means possible".

Before closing I'd like to congratulate Alan Gibbs, VK6PG for his most informative articles in "Ham Shack Computers".

73, Kingsley, VK5BHP

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Andy VK3IV

A simple TV-aligned crystal frequency reference

Drew Diamond, VK3XU
45 Gatters Rd
WONGA PARK 3115

Since we lost our free-to-air time and frequency service VNG early in 2003, this region has been without a dedicated, accurate source of radio frequency. At least one method (Ref 1) has been described where signals from WWV (North America) and/or WWVH (Hawaii) heard on a short-wave receiver may be used to adjust an ovened crystal onto frequency. However, WWV's signal strength and phase is not usually steady due to propagation vagaries, so a fair degree of skill is necessary to achieve good setting accuracy.

Broadcast TV signals are an alternative. As far as can reasonably be determined, the video signals of our TV networks are referenced either to a rubidium standard, or an ovened crystal, whose accuracy is probably as good as, or better than the average amateur radio worker ever requires. Such highly accurate sources are constantly and freely available to any person with a TV receiver.

We can easily tap into this asset by maintaining an ordinary crystal, which is divisible down to some frequency, which equals, or is a multiple of the 15.625 kHz TV horizontal oscillator rate (Ref 2). An 8, 4, 2 or 1 MHz crystal, if repeatedly divided by 2 (modulo-2), will yield useful TV-comparable frequencies, such as 250, 125 or 15.625 kHz.

These square-wave signals, being rich in harmonics right up through VHF, may simply be applied to the antenna input of a TV receiver along with the off-air programme. An interference pattern is thus created upon the screen. When the crystal is oscillating at exactly 8.000 MHz, the interference pattern is stationary. More later.

Circuit

A modulo-2 divider with internal oscillator; type HCF4060B CMOS chip (Fig 1), is used to divide an 8.000 MHz crystal by Q to the power of 4 ($Q4 = 32$) to 500 kHz, then by a factor of 2 again (Q to the 5th or $Q5 = 64$) and so on as far as $Q14$ if necessary. It is suggested that we only need the $Q4$ (500 kHz), $Q5$ (250 kHz), $Q6$ (125 kHz) and $Q9$ (15.625 kHz) outputs for radio work.

Construction

The prototype is made using "paddyboard" ("Manhattan" in the USA) style construction (Ref 3). A suggested layout is pictured in Fig 2 and Photo 2. But any preferred wiring method, such as 'ugly' or 'dead-bug' may be used provided that the oscillator component leads are reasonably short.

Dimensions of the plain circuit board are 70 x 55 mm if the device is to be housed in the suggested 130 x 87 x 44 mm 'jiffy' box shown. The 4060B chip is inserted into a 16-pin I.C. socket, which is soldered into an 8 strip x 25 mm rectangle of Vero board- tracks upwards. The Vero must have a single shallow junior hacksaw cut placed down the middle to separate each side of the chip. The socket pins poke through, so the Vero substrate must be super-glued to a similarly sized scrap of single-sided circuit board (copper side down), which in turn is glued onto the circuit board, as shown in Fig 2. Note: super-glue in liquid

form is slightly conductive, so the chip must not be powered until the glue has set. Use it sparingly.

When planning the positioning of the front panel components (particularly your kHz rotary switch), make sure that these shall not clash with the board-mounted components beneath when the jiffy box lid is in place. The 25 pF crystal frequency trim capacitor should be soldered upon the board so that a tweaking tool may be easily applied. Photo 2 shows the top of the air-spaced 25 pF cap, just poking through a hole in the side of the box.

The "signal injector" may be made from scraps of double-side circuit board,

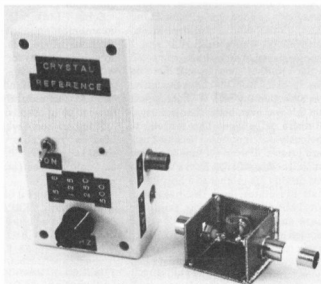


Photo 1 – Crystal reference and signal injector.

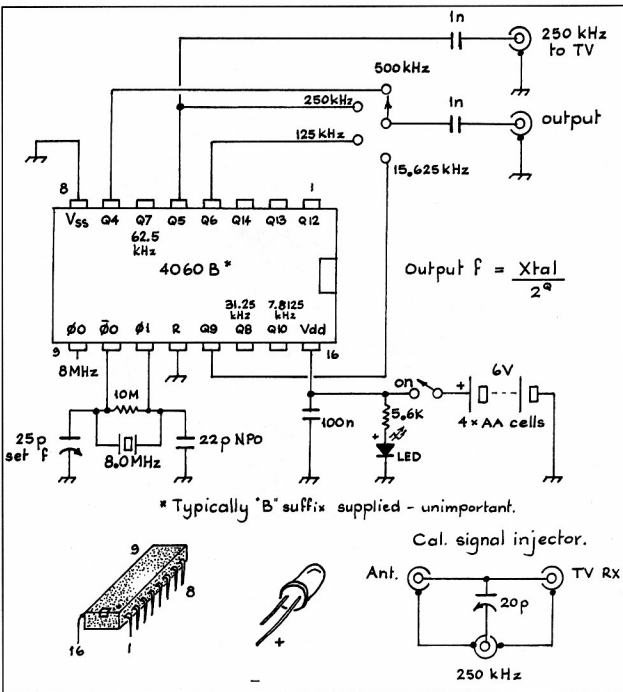


Figure 1

as pictured in photo 1. The 20 pF capacitor (which adjusts the strength of the interfering signal) may be soldered between the "250 kHz" connector, and a small length of bus wire connecting the other two.

Operation

Check your wiring and component polarities. Pay particular attention to the orientation of the 4060B chip and battery polarity. Interpose the signal injector between TV receiver and antenna, and connect the crystal reference to the '250

kHz' input of the injector with a short length of coax (about 1 m).

Switch on. There should be an interference pattern of vertical bars, or lines upon the TV screen similar to that shown in Photo 3. Adjust the 20 pF capacitor of the injector for a good clear pattern without "tearing" of the picture.

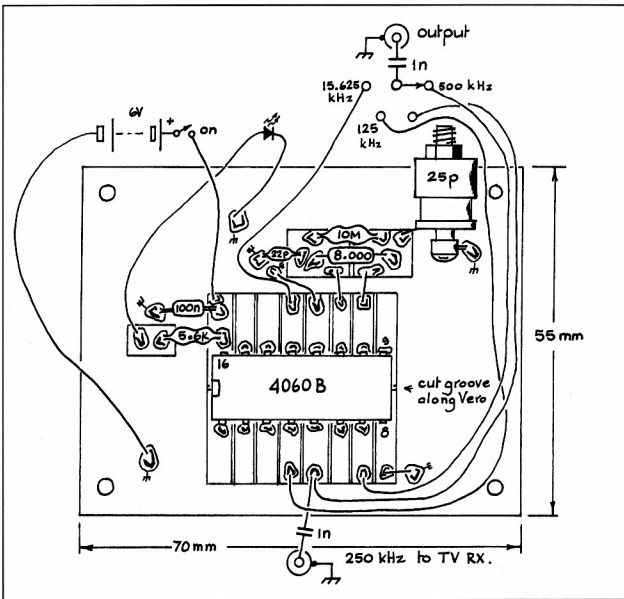


Figure 2

Now carefully adjust the trim capacitor so that the lines are stationary. Use the watermark logo—usually visible on the screen as a reference point.

Click to each TV station available to you, and observe that a good agreement is had in each instance. Interestingly (here near Melbourne) the only station that measurably differs from the bunch is SBS, due (possibly) to Doppler-shift produced by the satellite link. Nevertheless, very good congruence (and therefore low uncertainty) should be obtained between stations.

When used to check the accuracy of a digital counter for instance, the above is first performed. When the pattern is stationary (on most- or all local channels), the 500 kHz signal may be applied to your counter's input, where the display shall read 500.000 kHz plus or minus 1 count.

Similarly, the 125, 250 or 500 kHz signal may be applied to your receiver's input (a wire from the calibrator-wrapped around the receiver's antenna lead or coax should do) and the receiver's dial accuracy checked accordingly.

Parts

All necessary components are quite common, and are collectively available from our usual parts suppliers. It happens that most of those used for the prototype were purchased from Jaycar, including the 4060B chip, 8 MHz crystal and jiffy box. The trim capacitor for the crystal should be an air-dielectric type, such as a "beehive" 25 or 30 pF, which are known to be available from Electronic World (03 9723 3860).

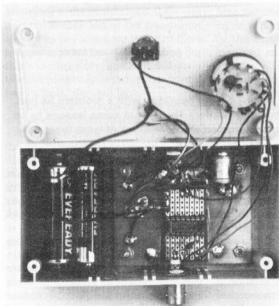


Photo 2 – Internal view.



Photo 3 – Typical interference pattern, 250 kHz.

EU Sprint April 2004

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and the CW leg is the following **Saturday, 17th April.**

Software to use: DL2NBU's program has been written specially for this contest. It is very much like K1EA's CT, and it is **FREE** for download from the new Eu Sprint web site
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support the Eu sprint, and if you prefer to log on paper, that's fine as well. We accept any fixed column ASCII file, too. We hope you will give the sprints a try and then send your logs to eusprint@kkn.net

73 from the EU Sprint Gang I2UIY, OK2FD & G4BUO

Summary

Our region is now without a dedicated free-to-air source of accurate radio frequency. However, by maintaining an ordinary crystal, which is easily divisible down to a frequency that is a convenient multiple of the TV horizontal frequency, the amateur may align the crystal's frequency against that of local TV transmissions, and thus exploit a rich source of accurate frequency at no cost.

A practicable circuit using an ordinary 4060B CMOS chip to generate relevant TV-related frequencies has been described, so that the amateur may use the device as an intermediary reference to check the accuracy of other frequency generating, or measuring instruments.

References and Further Reading

1. "A Temperature-controlled Crystal Frequency Calibrator"; Diamond, AR, Dec/Jan '02/'03.
2. "About Frequency References"; M. Greenman, ZL1BPU, Break-In, Jan/Feb. '03.
3. "Paddyboard Circuit Construction"; Diamond, AR, Feb. '95.

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Never give up!

Authors' names and callsigns supplied

We recently had occasion to assist a friend, a visually impaired amateur radio operator, with a problem he had with alleged interference at his place of residence in a group housing situation. There were some lessons to be learned, particularly to be patient, to be firm but considerate, to be sure that the conditions of lease were fully understood by everyone, and, most important, to never give up.

It has been said that the resolution of an interference problem requires diplomatic as well as technical skills. In other cases, the technical solution has always been the more challenging. Well, not so in the case of our mutual friend.

Firstly, as our friend could not himself read the licence/lease agreement, he had his solicitor check it for him. There was a misunderstanding in that the legal person did not know or failed to appreciate that he was dealing with an amateur radio operator, and failed to

bring to his attention that there was a clause in the lease that effectively prohibited such activity. Certainly, if our friend had known, then it is doubtful whether he would have signed the lease to begin with.

However, being unaware of this restriction, our friend arranged for a magnetic mount dual band antenna to be placed on top of the window mounted external air conditioner, connected it to a dual band rig and he was on the air.

For about a week.

Some other residents apparently noticed the antenna, complained to management about it and that's when the trouble started. The conditions of his lease were quite unequivocal, and so our friend had to stop transmitting while we tried to sort things out. As you can appreciate, our friend has very limited opportunities to enjoy the rest of his life, and without amateur radio to occupy his mind, the future looked pretty bleak. But in the face of the direction, the dual bander came down and our friend was QRT.

We first approached the Residents' Committee for support, but this turned out to be a waste of time. One of the members had a son in law with apparently a decent sort of tower or mast in his back yard, and without listening to any discussion averred that there was no way that she would support any sort of activity involved with "such ugly structures". It did not matter that all we were proposing was a simple vertical that would not have been visible from more than about 50 metre, no, she wasn't having any of that radio business there! They also used an argument that there were no other antennae of a similar type within the

residences, and they didn't want to start a precedent now. But that was one for us, because there were already four antennae similar to CB HF 1/4 wave verticals on the premises.

So thwarted by the Committee (which foolishly we thought were there to advance the interests of members) we then embarked on an exchange of letters with management that obviously did not appreciate the rules and regulations re amateur transmitters. But eventually they bent enough to say yes, he could operate subject to a number of conditions, amongst them being: -

- insurance being taken out on the antenna in case it fell and hurt someone or something, and
- the acceptance of all responsibility for any interference that may be caused, even to the extent of repairing or remedying any faults in the equipment being interfered with.

Now obviously the second of those conditions wasn't on, so a further exchange of letters with the head office took place, pointing out the facts of life and eventually reason was seen, and permission was given to install a gutter mount antenna. As a bonus, this worked much better than the dual bander, as it was considerably higher.

But then it was found that there was interference with quite a few TV sets, many of which were a bit ancient and so had minimal

rejection capabilities.

One resident became very aggressive, even ringing our friend at any time of the day but always hanging up the phone before our friend had a chance to talk to him about what should be done, ie involve the ACA straight away. But no,

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...as radio amateurs, we had the
resources to remedy the situation
but for one reason or another, we
were prevented from
implementing a solution

according to the complainant there was no interference before the transmitter was set up (we found out later that there always had been interference there, but that's another story) and so it definitely was our friend's fault and he (our friend) had to fix it, now, not later.

This person also complained he had at his own expense, bought from a major electronics store, a filter to try and fix the interference, but not surprisingly, it didn't work. We thought that whilst salesmen were good at selling things, they didn't necessarily know much about technical matters or what sort of filter should be used and where it should be placed, particularly when they hadn't seen the actual problem.

An experienced TV antenna installer, who coincidentally also held an amateur licence, had been following progress with a great deal of interest. After a quiet inspection, he was of the opinion that all that was needed was a rejection filter installed at the main central TV antenna. But no, management was not having any of it, even though our friend had offered to pay for the filter.

So it dragged on a bit with management pursuing a course of action called "masterly inactivity". Finally however whilst a relieving manager was in charge, the ACA was called in with their equipment. It was quickly found that our friend's equipment was clean and operating within specifications on all amateur bands, and so he was cleared of all faults. The fault was found to be in the central distribution antenna serving all the TV's in the estate. It was quite coincidental of course that the antenna installer was there at the time, and even more coincidental that he had an appropriate filter on hand in his van. Curious, that!

So at the relieving manager's direction, the filter was installed, and lo and behold, all interference has stopped. The same result could have been achieved, without all the angst, if management had listened to us months before.

So our friend is now operating on two metres and 70 cm, IRLP and 20 metre CW, and everyone is happy.

Except the most vocal complainant who still has not conversed with our friend directly. Well, he may be happy, but at least he is now not aggressive to our friend.

It would have been very easy for us to have given up very early on. From the

time the dual bander was first spotted on the window mounted air conditioner, to the time that the ACA became involved and the problem fixed once and for all, was something like six months. It involved an amount of verbal intimidation and aggression by one person, extreme prejudice by a group, and ignorance on behalf of management, which would not take advice as to how to go about fixing the problem alleged to exist.

Now, our friend is a much relieved person, there is no stress and he sleeps a great deal better. Our friend never gave up and we know at times, he was prepared to "throw in the towel" but thankfully he held on and is now enjoying his amateur radio as much as he ever did.

So never give up, but in any case, read and understand the fine print first.

Technical details

I was horrified when I had taken a casual glance at a television set while our friend was transmitting happily away on 70 cm IRLP at 5 watt output, to see an interference pattern. The premises have been the subject of many television reception complaints over the years but prior to this instance, the source has never been amateur radio. When people started complaining about interference, mainly on channel 9, it was put down to the same old problems of other times. I couldn't believe that at the frequency of operation and the output power involved, that we would get into any trouble. But our friend on this occasion was the unlucky one.

The problem, at a guess, was a mixing of 632.250 MHz vision carrier (WIN TV) and our friend's 433.725 MHz signal. The result was interference in the channel 9 picture. As our friend's transmitter was manipulated to bring the mixing product closer to the channel 9 vision carrier 198.250 MHz the interference became severe.

The solution was to provide a high pass filter so that only the UHF television signals entered the masthead amplifier input. Unfortunately for our friend, the politics of the situation took over and I could see that, as radio amateurs, we had the resources to remedy the situation but for one reason or another, we were prevented from implementing a solution.

RippleTech Electronics

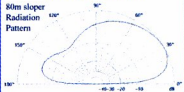
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PCI sound card interface

John Hodgkinson VK2BHO

Digital modes have steadily been increasing in usage by the Amateur Radio fraternity for some years now, the widespread usage of PCs has also impacted on Amateur radio. In the beginning dedicated systems were developed and marketed. The most dramatic impact took place when free software using a PC's Sound Card as an interface was released freely on the Net. In just the last few years we have seen a dramatic increase in usage of these new modes by many amateurs. Due to the fact that one simple hardware interface between the transceiver/radio and the PC sound card will support most if not all of the new modes, PSK31, MFSK16, SSTV, HELL and others.

Like many others, a fellow local amateur attracted me to this activity and about that time I was also developing an interest in things digital. I was trapped as they say. The scene was set, and also several other locals were taking the plunge. Then the horror happened: blown up sound cards. How did it happen? A lack of understanding and technical knowledge with interfacing and level control most likely. A little knowledge is dangerous as the saying goes.

An interface is described as *A common boundary between two objects.* In electrical/data terms this means that information can freely pass from one side of the boundary to the other, while at the same time providing complete

electrical isolation between the circuits on either side of the boundary, e.g. the amateur transceiver and the PC.

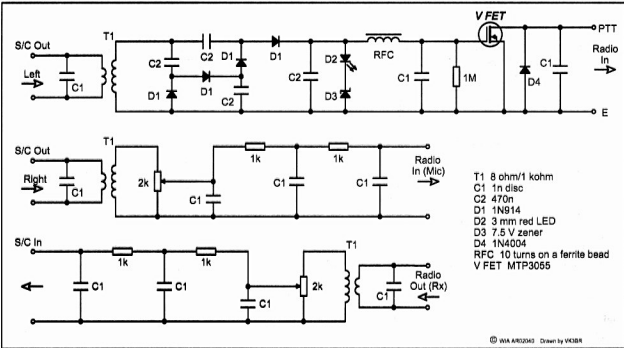
Early interface circuits (which are still being published in amateur magazines) are a hidden disaster to those who innocently try them. Variable resistors and transistor inverters do not an interface make. Next came audio transformer decoupling for send and receive data streams and opto isolator decouplers for the TX PTT line. This system needed a Comm. port output and a dc voltage source. For those with only two Comm. ports usually in use, it required cable swapping to access the amateur radio interface.

An article in Sept 2000 QST suggested a method of providing a complete

transformer isolated interface with the PTT generated from the send data stream. Using the principle involved, an interface was constructed using local parts which worked first time for me. Sharing this knowledge with other local club members was of some disappointment to some and I had no idea why. Well, in due course I updated my computer to improve my SSTV program capabilities. Suddenly my digital interface no longer worked and I was in the same position as the others who could not make it work.

Solution

Investigation proved that sound cards are not sound cards as the saying goes, the original sound card was a Sound



New ARRL DXCC Ruling February 2004

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At its January meeting in Windsor, Connecticut, the ARRL Board of Directors removed paragraph 1.c) from the criteria for determining a DXCC Entity. This provision, implemented in 1998 as part of the DXCC 2000 Program, had provided that "An Entity will be added to the DXCC List as a Political Entity if it ...has a separate IARU Member Society." Since that time, the rule has allowed for the addition of four new DXCC Entities and the retention of one existing Entity.

At the time it was not expected that this would create difficulties with the administration of the IARU. Unfortunately, the provision has had the unintended consequence of stimulating applications for IARU membership that do not further the objectives of the IARU, creating an unfortunate and unnecessary administrative burden.

The rule change will have no effect on those Entities created by or as the result of the rule. According to DXCC Rule II, 5. C), "A change in the DXCC Criteria shall not affect the status of any Entity on the DXCC List at the time of the change."

The other two criteria for the determination of a Political Entity for DXCC continue in effect:

- a) The entity is a UN Member State.
- b) The entity (except international organizations) has been assigned a callsign prefix block by the ITU.

The text of the Board resolution reads: *WHEREAS, the DXCC 2000 program adopted by the Board in 1998 included changes to the criteria for a DXCC entity, and*

WHEREAS, one of the new criteria makes separate IARU membership the basis for determination of a "political entity," and

WHEREAS, this rule has served a constructive purpose with respect to existing IARU societies, but

WHEREAS, the rule also has had unforeseen consequences in creating an incentive for the creation of proposed IARU societies that do not further the objectives of the IARU, and

RECOGNIZING that elimination of the rule has no effect on the DXCC entities that already have been created as a result of the rule,

RESOLVED, that the DXCC rules are hereby amended by deleting IARU membership as a basis for determination of a "political entity."

ar

PCI sound card interface continued

Blaster 16 which has 2 x 2.5 watt amps capable of directly driving 8 W speakers. The new Multi Media PCI sound cards have much lower output intended to drive amplified speakers. At normal program fader settings there was not sufficient output to saturate the PTT power FET nor to turn on the indicating TX LED. The measured audio output was 600 millivolt ac, which produced just over 2.1 volt dc when rectified. This is well below the 10 volt needed to saturate the MTP3055 FET, the original SB 16 sound card being capable of producing 20 volt dc.

Since the FET is a voltage controlled device it draws no current. The voltage quadrupling rectifier was trialed and found to produce approx. 10.5 volt dc from the data stream using an 8 Ω / 1 k Ω transformer, this voltage saturated the FET, one down one to go. Several LEDs were tested and a 3mm red LED was found to provide a reasonable glow at 200 mA of current. The clamping Zener was reduced to 7.5 volt and the combination set the gate voltage at 9.6 volt with a reasonable LED glow. This being achieved at approx mid range slider settings.

Construction

The modules can be enclosed in a suitable box. If a metal box is used "CARE" must be taken to ensure there is no dc continuity from input to output on any interface module. Shielded audio cable is recommended for connecting cables, other options are to use 8/1k ohm or 1:1 isolating transformers depending on the sound card in use and the audio signal source (see connection). All components were locally sourced and appear available through most usual electronic suppliers, cost (excluding box) approx. \$25 in March 2002

Connection

Depending on your particular sound card and/or your radio you may need to use slightly different configurations. My HF transceiver has a line level audio output. I use a 1:1 transformer with this interface but my 2m VHF does not and I use a split of the 8 Ω speaker output and a 8 Ω : 1 k Ω transformer in this interface to achieve sufficient audio drive at the sound card Line In input. If you only

have a "Mic In" input to the sound card, dc blocking is required as normally +5 V for the electret microphone is supplied by the sound card. In the send direction, if you do not have a Line Out output from your sound card then separate the stereo outputs of the Speaker Out output. Using one to provide the send data stream and the other to drive the PTT interface ie. the Left and Right channels. This provides signal path isolation which was not provided in some versions of other published designs.

Conclusion.

A PCI sound card interface with complete isolation between the radio and PC.

A passive device no external power source required.

Data stream generated PTT that frees the Comm port connection making the interface connection simpler.

Achieved at normal slider settings "not end stopped".

It worked for me, maybe it will for you.

ar

Technical Abstracts

Peter Gibson VK3AZL

More on solid-state lamps

Pat Hawker also referred to the article by Phil Sales AD5X (Tech Abstracts AR, April 2004) in the November 2003 issue of RadCom. In the February, 2004 issue of RadCom, he has published follow up correspondence from Dave Gordon-Smith, G3UUR.

He touches on a number of matters, starting with questioning the economics of using LEDs if it is still possible to purchase incandescent lamps at low cost at rallies or on special.

However, these bulbs do produce considerable heat and can distort or discolour plastic dials. Changing to LEDs may be beneficial in this respect, but they may well upset the thermal balance that the manufacturer intended when providing temperature compensation. Therefore, you should be aware that there may be unexpected consequences of wholesale replacement of incandescent lamps with new white LEDs.

Some of AD5X's figures for the voltage drop of bright LEDs are questioned. "White LEDs are usually blue LEDs with a phosphor coating the chip. The blue light excites states in the phosphor, producing light over a broad range of wavelengths. Good quality, White/Blue

LEDs have a forward voltage drop of about 3.6V at 20mA. By 'good quality' I refer to perfection of the material used - InGaN in this case although, in the technical press, it seems to be generically called GaN (there is some GaN as a buffer layer, just above the sapphire substrate).

"Beware of blue LEDs that are made from GaN (really InGaN and AlGaN epitaxial structures) and have a 4V forward drop at 20mA - they are much inferior, and their reliability and light output will be lower than the better devices. A general rule for the forward drop of an LED is that the shorter the wavelength, the higher the voltage. Green should be higher than amber and blue slightly higher than green.

"I also have a concern over the peak reverse voltage of the InGaN devices. For a 6.3V RMS filament supply, this can be as high as or higher than 9V. InGaN LEDs have a specified reverse breakdown voltage of only 5V. They are tough little critters, and will stand such abuse, especially with a current limiting resistor in circuit - but don't expect them to last for one million hours as specified for continuous forward operation at 20mA. In reality, they may

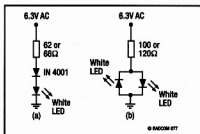


Figure 1

fail sooner than an incandescent lamp.

"There is a simple fix for this problem - put a diode (1N4001) in series with the LED and this will protect it in reverse bias. See (a) in the drawing. The series limiting resistor value needs to be reduced to get the same brightness. Alternatively, at extra cost, connect two LEDs back-to-back, so that one conducts on positive half-cycles, the other on the negative. That way, you get twice the light output with each LED protecting the other. See (b) in the drawing. This allows you to reduce the forward current for the same brightness as one running only half the time. Consequently, you get a longer life from the InGaN LED and this approach should work out cheaper in the long run.

The load shedder

For those mobilers who have suffered from a flat battery, here is a project for you.

Rod Kreuter, WA3ENK (QST February 2003) describes a circuit that monitors the battery voltage and disconnects it from the load if it drops below a preset value.

This circuit monitors the battery voltage, and as the voltage drops (the battery discharges), a LED flashes and a Sonalert chirps out a warning (the warnings can be disabled). If the voltage continues to fall, the Load Shedder acts like a simple switch - it opens. This disconnects (sheds) the load, hopefully saving the battery whilst protecting the

equipment from under-voltage. It also saves the owner from a dead battery and a vehicle that will not start.

Both the warning voltage and the trip voltage are adjustable from about 11 to 13 V, the trip voltage always being lower than the warning voltage.

The drawing shows the complete circuit of the Load Shedder. The heart of the circuit is a precision voltage reference (U3). This diode is much more precise than a simple zener diode and provides a stable 2.5 V reference, even when powered from a severely discharged battery.

The voltage reference is compared to two other voltages, the warning and the

trip voltage, by comparators U1A and U1B. The warning comparator, U1A, enables a low frequency oscillator that drives the Sonalert. The pulsing tone is considered to be more 'attention getting' than a constant tone. The oscillator U2D does double duty. It generates the tone to drive the piezo noise maker as well as working as a charge pump, with diodes D2 and D3 and capacitors C7 and C8 to provide 24 V to drive the gate of the FET switch.

This voltage is required so that an N-channel MOSFET can be used in preference to a P-channel device. The N-channel has the advantage of having

continued on page 30

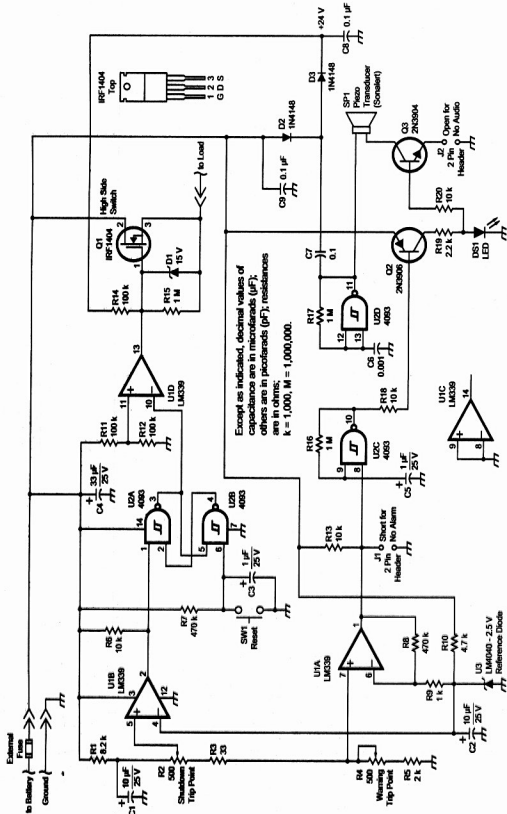


Figure 2



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Ten Tec Jupiter HF Transceiver

All Pegasus features plus a large LCD panel and controls. Can be used directly under PC control in Pegasus emulation Mode. The GUI software at no charge. With the command set for control of both the Pegasus and Jupiter you can write your own control software. **Frequency range:** 10-160 m + WARC Mode: All-mode (AM receive only) **RF Power output:** 5-100 W **Voltage:** 13.8 VDC **Current drain:** RX: Max 1.5 A TX: Max 20 A **Impedance:** 50 ohms **Dimensions** (308*127*330 mm 5.3 Kg



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We have these world famous kits, and remember, it sounds better on something you built yourself. Start with a small kit and build up to a transceiver.

Check out the full list on the site.



Orion is here

We are working to separate the overjoyed owner from his new gear long enough to talk with us. When we do, we will bring you an assessment of how it all works. But until then, the list of primary benefits says it all:

- Dual 32-bit floating point ADI SHARC DSP processors
- Full dual receive capability
- Very high RX intercept points
- 590 receive IF-DSP bandwidth filters independently selectable on each of the main and sub receivers
- Adjustable receiver filter shape factors
- Programmable AGC response time for

- main receiver
- True diversity reception using both receivers
- Continuous real time spectrum display allows monitoring of band activity
- Instant Two Radio Mode™ allows ORION to instantly QSY between two different bands
- Virtually indestructible 100-watt PA
- Superb SSB audio is yours at a touch of the AUDIO button
- Ten-Tec's

- new Panoramic Stereo receive feature
- Adjustable rise and decay times for transmitted CW waveform
- Nine adaptive DSP noise reduction filters
- Dual noise blankers
- Voice keyer and CW memory keyer built in
- On-the-fly reset button
- Flash ROM updatable

TEN-TEC ARGONAUT V



Frequency range: TX: 10-160 m + WARC

RX: 0.5-30 MHz
Mode: AM/FM/SSB/CW/AFSK
RF Power output: 1-20 W
Sensitivity: SSB/CW: 0.2-0.35 uV (10 dB SINAD @ 2.4 KHz bandwidth)
AM: 0.5-0.9 uV (10 dB SINAD @ 6 KHz bandwidth)
FM: 0.35-0.6 uV (12 dB SINAD @ 15 KHz bandwidth)
Selectivity: 35 built-in filters SSB/CW: 200-3000 Hz AM: 400-6000 Hz FM: 15 KHz

Image rejection: 80 dB **Voltage:** 13.8 VDC
Current drain: RX: 950-7 mA TX: Max 6 A
Impedance: 50 ohms SO-239
Dimensions (W*H*D): 216*70*246 mm
Weight: 2.2 Kg
100 memories. Scanning. CTCSS encoder. PSK31-ready. IF-DSP
*Software defined radio.

Download new functions from your computer.

TEN-TEC 6n2



Model 526 "6N2" multi-mode 6m/2m transceiver. Amateur radios' first IF-DSP multi-mode VHF rig. For a long time, there have been no affordable choices for either 6 or 2 meters in a single band VHF multi mode transceiver. Active hams planted the idea with us - why not offer a single rig that has BOTH 6 and 2 meters, without sacrificing

performance? Multi-mode HF/VHF rigs have been around for years, at over a thousand dollars and with compromised performance on the VHF bands at best. The 6N2 provides serious multi mode VHF performance in a small, take-anywhere package at a significantly lower price than HF+VHF multi mode transceivers.

Ten Tec RX350 Communications Receiver

- Modes AM/DSB, SAM/LSB, SAM/USB, AM, LSB, USB, CW, DIG, FM
- Tunes 100 KHz to 30 MHz
- Stability +/- 90Hz at 25 deg C
- Selectivity 34 inbuilt filters
- S Meter S9 calibrated to 50mV standard
- Spectrum Sweep Display
- PC Interface



RX340

Professional Communications Receiver

- Modes AM, SAM, LSB, USB, ISB, CW, FM
- Tunes 5 KHz to 30 MHz
- +/- 1 ppm frequency stability
- User programmable AGC
- Selectivity 57 bandwidths selectable from 0.1 KHz to 16 KHz
- Meter Calibrated in both dBm and S Units
- External IF and digital (DSP data) outputs
- Both balanced & unbalanced audio outputs
- 100 memories that store frequency, bandwidth, AGC and Mode
- Remote controllable via serial RS232 port
- Rack Mount, 3U in height
- Power 90 to 264 VAC 30 watts
- Used by US and Australian Government Agencies



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The MAC-200 has a Smarttuner and an Antenna Switch in one compact unit. Controls

5 ANTENNAS

3 SO239 COAXIAL CONNECTORS

1 BALANCED ANTENNA OUTPUT

1 END FED LONG WIRE

MAC-200

MASTER ANTENNA CONTROLLER (Smarttuner Built-In)

Displays Forward power on 20 and 200 watt scales and VSWR. Smart enough to do the job without operator attention.

The Mac-200 from SGC is THE answer for feeding multiple antennas from a single transceiver! It's more than a switch, it shares a tuner between all of the antennas. It knows which antenna you're on and remembers the last successful tunes on each antenna so it can get back there fast. All of this works in less

than 10ms for frequencies you've been on before, less than 2 seconds for randomly chosen frequencies with a no compromise Pi Network output. The Smarttuner remembers everything for quick, perfect matching. The push of a button makes it work, everything else is automatic. Built in meters for easy monitoring, low power consumption, and rugged construction make it useful for complex field portable operation as well.

"... reports I was given were from 5x5 to 5x9+ on eighty and forty meters QRP. I am told it sounds like 100 watts is being used ... my slogan now is 'the Box that brought my amateur radio hobby back to life'"

(One of UK's most active low-power amateurs talking about the MAC-200)

Not only but also---
Autek Analysers & Power Meters
Davis Weather Stations
Amidon Cores. Call for a stock/price list
Baluns and Transformers

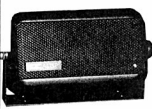
SG 2020 ADSP²

Small, light, rugged, recessed face. Pre-set for 20 watts PEP with front panel power adjustments down to 1W for QRP'ers or up to 20W for serious USB or LSB 'hamming'. 20 pre-programmed memories preset to each of the 9 worldwide ham bands. Each memory position can be selected for a specific: transmitter output power, specific amount of bandwidth filtering, mode and split VFO. Crystal clear.



ADSP2 Speaker

Works with the press of a button. You can select from three modes of operation: no noise reduction, the original ADSP, and the new ADSP2 noise reduction modes which provides up to 26 dB of noise reduction within the passband. The ADSP2 Speaker is "One Touch" simple to



up to 26 dB of noise reduction



SG-237 HF-VHF SMARTTUNER®

World's Smallest High Performance Antenna Coupler Finished Product or PCB

- 100 watts
- 1.8 to 60 MHz

Model SG-230 Smarttuner™

Automatic microprocessor antenna coupler. Can be used within its power rating with any HF Transceiver in range of 1.6-30 MHz. Designed for marine, portable and fixed base applications. For antenna types: 23 ft marine whip for 1.6 to 30 MHz and with 9 ft. minimum antenna for 3-30 MHz operation. memory channels: 170 Frequency range: 1.6-30 MHz Power rating: 200 watts PEP maximum: 12VDC operation.

The SG-239 Smarttuner™ antenna coupler

With any transceiver get long distance communications. Great results with a longwire antenna or a coaxial fed multi resonant antenna at the unit window, fits many low cost HF transceivers: Scout, Yaesu FT-817, Kenwood TS-50, Icom IC-706, and the K2 kit. Ideal with the legendary SG-2020 transmitter. Silent receiver tuning or within 1.5 to 200 watts with a high power transceiver. 170 memory bins, independent sensors, inc VSWR, phase, magnitude, low impedance, and forward sensing.



SG-211

MINI-Smarttuner

SGC is announcing a new Mini-Smarttuner, with zero power consumption. No DC wiring is necessary to power this Smarttuner. It has a naturally balanced output for operation with whips, long wires and dipole antennas



Due for release
April

We will have
stock end of April

See it all on

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LDG-AT1000 High Power Antenna tuner

Microprocessor controlled
 Switched L tuning network
 Continuous coverage 1.8 to 54 MHz
 Power rating HF (1.8 to 30 MHz): 1000
 Watts Single Side Band 750 Watts CW 500
 Watts Digital (RTTY, Packet, etc.) Power rating 6 meters: 100 Watts



RT-11 Autotuner

A feature of the RT-11 is latching relays, which retain their settings so the RT-11 can be powered down once it is tuned. If you shut down after a night of operating, the next morning the tuner is in the same configuration. This power saving feature is very popular with our QRP RT-11 customers. The heart of the RT-11 is a 68HC11 microprocessor which performs many hundreds of quick tests to determine the correct combination of capacitors and inductors to load your antenna system. Tuning is in 1 to 5 seconds. The tuner can handle 0.1 to 125W (100 Watts continuous, 50 Watts on 6 meters) of RF power. The water resistant case can be mounted on a tower, in a boat or car, outside the window of your shack, ... almost anywhere. The case has 2 range mounting brackets to facilitate ease of mounting. Since the unit is RF sensing, it will tune when it senses a band change (high SWR), thus it will operate with any HF radio.

Spotlight on SWLing

Robin L. Harwood VK7RH

Programme reductions unearth buried treasures

As I predicted in last month's column, there certainly has been a dramatic reduction in programming output from 27th March. The Christian Science Society closed their 500 kW senders in Cypress Creek, South Carolina on February 29th and the senders are still on the market. Apparently the Society, publishers of the respected "Christian Science Monitor" daily newspaper, decided to permanently end their involvement with Shortwave, opting for Internet delivery and local programming.

The Governing Board of the IBB, which supervises official American government external broadcasters such as the VOA, R. Marti, R. Liberty, R. Sawa, R. Farda etc, decided also at the end of February to end broadcasts in certain central and eastern European languages over shortwave. One of the languages slated for closure was Ukrainian and arrangements were made for local relays of programming. However the Ukrainian government put pressure on the local stations to switch all relays of external stations. This pressure resulted in murder and some media owners fled

into exile into Western Europe. The immediate result, not surprisingly, was the rapid escalation of Ukrainian programming over shortwave and the deterioration in diplomatic relations between the US and Ukraine. Ironically Russian programming from Moscow goes into Ukraine uncensored as it does across the former Soviet Union giving news and commentary which has caused friction, particularly in Belorussia and Turkmenistan as well as in Ukraine.

The dramatic reduction has also allowed many low-powered signals to become audible after being buried under the major players. Funny enough, many of these signals turn out to be harmonics of senders in the medium and tropical allocations. Monitors in the Americas are hearing second and third harmonics of Latin American MW stations whilst they cannot be heard at all on their fundamental channels. Another phenomenon is mixing products from major senders, especially when two transmitters from the same site operate close to each other. Spurs are usually plus or minus the difference between the senders. E.g. the Sackville

site of RCI.

I have previously mentioned that the BBC World Service is now locally available over ABC Newsradio as well as over a community FM radio station, in the wee small hours. As from the 1st of March, I now am able to access London on Austar as part of their so-called digital radio platform, with a 24-hour service. I wonder if other external stations will also become available via similar sources. An Australian ethnic station in Italian is also on Austar.

DRM, the HF digital signal, is certainly becoming noticeable. I hear it primarily from two sites, Sackville in Canada or Bonaire in the Netherlands Antilles. I also am informed that DRM is being utilised by various organisations and is being transmitted in blocks from senders such as the above instead of installing expensive hardware at numerous sites. However DRM should be on channels well away from the existing analogue signals as the digital signals are wider.

Well that is all for this month. If you have any news or comments please send them to vk7rh@wia.org.au.

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Technical Abstracts

The load shedder

continued from page 27

a much lower 'On' resistance than a P-channel, thereby, lower losses. The downside of this lower loss, is greater complexity where you need a gate voltage of about 10 volts greater than the supply voltage (to ensure full enhancement and hence complete turn-on). Therefore, the oscillator is pressed into double duty as described above.

The second comparator, U1B, is the trip comparator. If the voltage falls to the trip voltage, the output of the trip comparator sets the flip-flop formed by U2A and U2B. The flip-flop is required to generate a positive switch off and stop

possible oscillation due to the battery voltage varying when disconnected.

The FET chosen is rated at 162 amp continuous, 650 amp peak current, with an 'On' resistance of only 4 milliohm (0.004 ohm). This translates to a 10 amp switch with no heat sink, to (at least) a 30 amp switch with a simple heatsink.

The only equipment needed to adjust the Load Shedder is an adjustable dc power supply, a dc load such as an incandescent 12 V lamp and an accurate digital voltmeter.

Place a jumper on J2 but leave J1 open during the following calibration. R2 and

R4 should be turned fully counterclockwise. Connect the load (12 V lamp) between the output and ground. Next apply a voltage equal to the warning voltage, say, 12.4 V. If the load is not on, push the 'Reset' button. At this point, the load should be on (lamp on) and the warning LED off. Adjust R4 until the warning LED blinks and the Sonalet sounds.

Next, lower the applied voltage to, say, 12.2 V. Adjust R2 until the load is switched off. Check the voltages again to confirm they are what you want. The Load Shedder is now calibrated.

VK1 News

Forward Bias

The Annual General Meeting for 2004 was held on Monday, February 23.

President, Alan Hawes, thanked all members for their help and assistance given during 2003 and handed out certificates of appreciation to those who had performed in an exemplary manner. After stand-down of the committee, Chris Davis, VK1DO, took on the role of Returning Officer, and conducted the election of the new committee members. However, as there were as many applicants for the various positions as there were positions, no voting was necessary and all applicants were declared elected.

The committee comprises the following persons: Alan Hawes, President; Phil Longworth, Senior Vice-

president, WICEN state coordinator, and chairman of ACT Technical Advisory Committee (ATAC); John Woolner, Vice-president, Bob Howie, Treasurer; Deane Walkington, Secretary; Graeme Wilson, Education; Peter Kloppenburg, Membership secretary; Colin Holmes-Clark, Broadcast officer; and Russell Manning. Graeme Wilson's first initiative is to make himself available on the second and fourth Tuesdays of the month at the Farrer hamshack to provide assistance to those pursuing private studies for any of the amateur licence examinations.

There will be two Trash & Treasure sales this year. The first one at 12 noon, on Sunday, May 16, together with a free

sausage sizzle, at the Parks & Garden compound in Longerengong St., Farrer, and the second one at 8.00 pm in Scout Hall, Longerengong St., Farrer, on Monday, August 23, 2004. During the T & T in May, Graeme Wilson will conduct VHF and UHF antenna tests for those who want to know the gain of their new or homebrewed Yagis.

During the months of January and February four membership applications were approved by the committee. They were: G.P. Wilson, VK4FXL; J.G. Bell; N.G. Chalmers, VK1ZNC; and W.P. Robertson.

The next general meeting will be held at 8.00 pm on Monday, April 26 at Scout Hall, Longerengong St. Farrer. Cheers.

By Peter Kloppenburg VK1CPK

VK2 News

Tim Mills VK2ZTM.

The Annual General Meeting

By now members should have received by separate posting, the paperwork pertaining to this year's AGM, which will be held on Saturday 17th April. At the close of nominations on Saturday 6th March last, Returning Officer Peter VK2EMU had only received eight applications. As the Council requires nine members there will not be an election this year. A quorum of thirty five is required at an AGM and all members are urged to attend if possible. If unable to attend, then exercise your proxy so that you can still be involved. You will notice that a couple of the agenda items are suggested changes to the Articles to improve the operation of future meetings.

Also this month there will be the annual Urunga Convention. It will be held as usual at the North Coast village of Urunga, near Coffs Harbour. This is held over Easter and will be the 56th year of activities. If you need details

contact Arnold VK2ADA. Still on the Mid North Coast, this time in June, it will be the annual Oxley Region Field Day over the long weekend. It is held at the Sea Scouts hall in Buller Street, Port Macquarie.

Amateurs are being encouraged to take part in the 80 and 160 metre contests in May, June and July. An opportunity for Limiteds to take part in some short duration events.

The VK2 Bookshop is hard pressed at times to keep up with the demand for orders. No sooner does a shipment land on the office floor, than it is out the door again to fill a back order. Thank you for your support. There is a range of back issues of QST and the like on CD. There are also a few copies of the paper version of each month's QST, which, even if posted from the office, is still less than the newsagent cover price. You should check the VK2 Bookshop Web site for details of stock. There may still be some 2004 callbooks available.

The effects of the lightning strike at VK2WI in late January proved to be a

busy time for Station Engineer Mark VK2XOF. By now all the main faults and the strained components should have shown their hand. The repairs included the renewal of SSB callback operation on 80 metres and the replacement of the 2 and 70 metre repeaters. Twenty five years plus of faithful operation of the controllers and the RF side, which had been assembled by Jeff VK2BYY, has been retired. Even older was the 2 metre beacon, which used an old, now obsolete RF line up, it bit the dust. It will be out of service for a while until a new line up is created. As previously mentioned in these notes, an opportunity exists for those with design and construction ability to ease the work load. An application for mode and frequency change for the 6 metre beacon has been lodged with the ACA. We will move to join the others in the 50 MHz region on the frequency of 50.289 MHz, in CW mode. Currently as these notes were prepared, the 70 cm beacon was also being difficult and was out of service. A license application has also been lodged for a repeater on 70 cm, on 439.900 MHz

Division News

to join the Dural line up.

The roster for the second quarter at VK2WI has been drawn up by John VK2JVV. We welcome Peter VK2HC, joining the morning Engineering side of the operation. Anyone else wishing to join the team should get in touch with the Parramatta office. The lightning strike also knocked out the site alarms. The unit has since been replaced with a changed version. A reminder that new access cards are required and any old card is no longer operational.

Terry VK2UX, the Divisional Education Officer, is currently conducting a Novice class at the Parramatta rooms. He expects that the class will sit exams in July. In an allied field, those wishing a particular call sign will still need to sit a morse exam this year. The Bookshop has a special on the morse booklet and three cassettes. Any club or group conducting classes later this year might like to check out this special with the Bookshop.

A few weeks ago Kathy, XYL of

Michael VK2YC was involved in a motor vehicle accident. We wish you a continued speedy recovery Kathy.

The next Conference of Affiliated Clubs has been suggested for the end of May, on the same weekend as the Trash and Treasure. Clubs should watch their Email system for details.

Again a request and reminder that the AGM will be held on Saturday the 17th April. If possible please attend so we can quickly reach the required quorum and transact the business without delay.

73 - Tim VK2ZTM.

VK3 News

By Jim Linton VK3PC

WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

GASS no more

The annual Great Australian Science Show sadly has been discontinued. This public event had provided WIA Victoria a very good opportunity to promote amateur radio.

A number of WIA Victoria affiliated clubs worked extremely hard to ensure that the amateur radio stand was manned by knowledgeable radio amateurs, and it included interactive components to interest and entertain both youth and adults alike.

Amateur Radio magazine on the front cover of its December-January holiday edition had a photograph of a youngster enjoying his first experience of our hobby. There were many others like him.

News from the promoters that falling attendances at GASS led to its demise has been greeted with disappointment by those involved. They can look back with some personal pride and sense of achievement about their role in promoting amateur radio.

GASS, held during Science Week, was visited by school groups and the general public. The experience gained by running the amateur radio stand will hopefully find another use in the future.

WIA restructure

At the time of writing these VK3 Notes, discussions were continuing on a proposal to restructure the WIA by

replacing the WIA Divisions with a single WIA.

The WIA Victoria Council has discussed the proposal and could not support it for a number of reasons including the fact that only draft documentation had been provided. The extreme haste in seeking to make this major change is of concern.

Still many issues have to be sorted and WIA Victoria members need to be consulted and vote on this very important matter.

There are a number of significant impacts that adoption of the new WIA proposal would have on WIA Victoria and its members. Are there going to be benefits or disadvantages and what are they?

WIA Victoria has noted that discussion on the new WIA has been biased in favour of it going ahead, while there is a lack of balance that would be expected for such an important decision. It explains its view on that matter in a motion to the WIA Federal Convention which can be read on the WIA Victoria website.

The WIA Victoria Council has also noted that there is a well-prepared proposed new WIA Constitution and brief supporting notes. However, in the Council's opinion, these do not provide adequate information for it, or members, to properly consider a proposal of this importance.

VK3BWI broadcast

The monthly broadcast is to be transmitted on the 30 m band (10.130 MHz) in addition to the 80 m, 40 m and VHF/UHF repeaters.

The new additional frequency followed liaison with interstate WIA broadcasts to avoid over-lapping broadcasts, particularly during daylight saving time.

Works are being carried out to fully restore the 80 m and 40 m transmissions of the broadcast which can now be heard three times, on the one weekend.

The broadcast continues its traditional 10.30 am and 8.00 pm time slots on the first Sunday of each month, and an advance transmission of the broadcast occurs at 8.00 pm on the Saturday night.

Annual General Meeting

WIA Victoria members should find inserted in this edition of AR magazine, the formal notification of the Annual General Meeting on Wednesday, 26 May, and annual reports.

Copies are also being mailed to those members who do not subscribe to the magazine as part of the membership.

QSL Bureau

The operation of the WIA Victoria Inwards and Outwards QSL Bureaux has been reviewed and found to be working very well.

After receiving a report on the review from the Treasurer, Jim Baxter VK3DBQ, the WIA Victoria Council resolved that the QSL Bureaux continue to operate in line with practices adopted some time ago.

This membership service is to remain free to members thanks to the dedicated work of the team of volunteers working from the WIA Victoria Office and at the various Distribution Points.

Members need to apply in writing to join the QSL Bureaux. Information sheets on how the system operates, the requirements including QSL card size and thickness, are available on request.

VK6 News

Compiled by Will McGhie VK8UU

Input to: will2@ilnet.net.au, 08 9291 7165

VK6WIA Council meeting

All of the VK6 notes this month comes from the April VK6 WIA Council meeting, which was a lengthy one, as considerable time was taken up with discussion about the next Federal WIA Convention. More about the Convention further down in the notes.

VK6 WIA Council minutes are released on Packet and are on the VK6 WIA web page and have been available for public scrutiny for several years. VK6 is the only division to do this.

On a sad note VK6CF, Chuck Farkas, passed away in February. Chuck was an amateur of note for many years in VK6 and had one of the best signals on HF, particularly 20 metres. See obituary on this page.

The VK6 WIA is to pay half of the VHF and above beacon license costs, taking up the 5-year option. The beacons are run by the VK6 VHF Group.

A letter from Graham, VK6BSL informed the council that he is running an Amateur Radio display at some libraries, mainly in the Northern suburbs.

It is VK6 council election time again and there were 10 nominations for 9 positions. In order to avoid a costly election process one of the nominated withdrew his application and will serve on Council in a non-voting capacity.

Standing down are long term Councillors Tony VK6TS and Eddie VK6ZSE. Two new Council members are Kathi VK6HKR and Roy VK6XV, although Roy has served on a non-voting basis for a number of years. The willingness of Council nominations shows a healthy interest in the VK6 WIA.

VK6NE our current VK6 WIA President has returned from the IARU

Region 3 convention with the news that Larry Price W4RA has been elected President and Timothy Ellam VE6SH/G4HUA Vice President.

There were 7 new members welcomed into VK6 WIA (6 AR students and 1 ex member returning). Financially the past year has been a good one for the VK6 WIA and there is no need to increase fees. VK6 WIA has the lowest fees of any division, a benefit that VK6 amateurs, and some non VK6 amateurs have enjoyed for many years.

A discussion was initiated about the under use of the Scout callign block and the possibility of releasing some or all of this allocation for general use. No conclusion was reached at the Council

meeting but it is an area that could be discussed further on a national basis.

Federal Convention

With the Federal Convention for 2004 soon, considerable discussion on how to vote on a variety of motions to be put at the convention took place. Of utmost importance is the discussion at the 2004 Federal Convention about future directions that the WIA may take towards a different structure, with a close eye on a National organization. Any decision that may be made at the Federal Convention on the WIA structure would be put to VK6 Amateurs before any decision is made by VK6.

Silent Key

Farkas, Charles (Chuck) VK6CF

Chuck who was born in NJ, USA died February 10th 2004 at his home in Kalamunda, Western Australia aged 84.5.

His love and interest in amateur radio began with building crystal sets at an early age and continued until two days before his death, his tower is a landmark in the Kalamunda area being some 100ft high.

He obtained his first licence W2IMX in the 1930s, and his present callign VK6CF soon after the end of WW2 having been introduced to his first WIA meeting in January 1948 by VK6GM.

Chuck joined the USN in June 1939 and entered active service in the USNAF in March 1941. He was a Pear Harbour survivor, serving in the Asiatic Pacific area as a radioman/gunner in the Catalinas in Patrol Squadron 22, Patwing 10, Patrol Squadron 101, and Scouting Squadron 81. From 1942 until 1944 he

was based at Crawley Bay (Catalinas) in Western Australia and after the war returned to Australia to live.

Chuck being a retired electrician designed and built his own service lift that went up and down the full height of his tower. He was also the only person in Western Australia to fly a home made 20 m, 5 element yagi that was supported by a one wave length boom.

Chuck also was a WIA VK6 Division member dating from back around 1946.

He was very well liked all over the bands, both local and international. We will miss Chuck.

He is survived by his wife of 58 yrs Dorothy, daughter Carolyn, son-in-law David and grandchildren Melinda and Paul.

Dorothy Farkas gave permission for the above.

Mal Johnson VK8LC

VK7 News

Justin Giles-Clark VK7TW

Email: vk7tw@wia.org.au

Divisional Web Site: www.wia.org.au/vk7

Divisional Council meeting

A Divisional Council meeting was held in Launceston on 21 February 2004.

This meeting covered a range of topics including a good report on Divisional finances, a design for thank-you certificates to be presented at the AGM on 13 March and a Tasmanian Bicentenary Award to be investigated by the Southern Branch.

Notification was also given that a new location for the VK7RAE Beacons has been negotiated and it will be collocated at the SeaFM transmitter site at Don Heads in the North West of Tasmania.

Branch Meetings

North

The Northern Branch's AGM was held on 11 February 2004 and new executive is:

President: Allen Burke (VK7AN), Vice President: Geoff Wells (VK7ZOO), Secretary J McCulloch (VK7CCC) and Treasurer: Bob Richards (VK7KRR).

North West

In the words of a certain Monty Python film about the Holy Grail...."I'm Not Dead Yet". I have been assured that even though the North West Branch has gone into recess, it is definitely still alive and kicking! Watch this space for a new executive in the near future.

South

The Southern Branch meeting for March was a visit to the ABC TV studios in Hobart to have a guided tour through the new ABC outside broadcasting semi-trailer by Rod, VK7TRF who is a Technical Producer with the ABC TV.

Rod started the tour inside the vision control room where they had just put together the Tasmanian ABC TV News. Rod showed the group how they put together the 8:30 news update complete with teletext. He then ran through what each desk and control panel does including a demo of the remotely controlled TV camera that is fondly named Baldrick!

We then toured through the actual TV studio and on to the ABC garage where

the 14 metre long semi-trailer was parked and the three air conditioning plants were humming away. Just the audio, video and power patch bays were a sight for sore eyes and the trailer is fed by two three phase 40 amp per phase power leads.

The side of the trailer extends to give an additional 1-1.5 metre of space within the trailer. This provides four comfortable areas within the trailer that

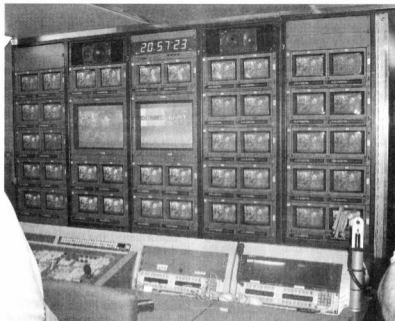
cover the different functions - cameras, storage mixing/production and audio that Rod outlined earlier in the studio control room. Just the vision control area was mind boggling with a wall of 44 TV monitors each of which can be separately fed via the vision router from any number of different sources.

It was a very informative and entertaining evening, thanks Rod.

ar



Attendees from left to right: Reg VK7KK, Geoff VK7ZOO, John VK7KDR, Steve VK7ZSJ, Ron VK7RN, Phil VK7ZAX and Dale VK7DG at the Divisional Council Meeting. (Attendees not in photo were Allen VK7AN, Tony VK7YBG and Justin, VK7TW)



The production area of the OB semi-trailer and yes, the producers are looking at 44 TV monitors!

Beyond our shores

David A Pilley VK2AYD
davepil@midcoast.com.au

UK new Authority

The Radio Communications Authority has recently been replaced by OFCOM (Office of Communications) which is now the regulator for the UK Communications industry with responsibilities across Television, Radio, telecommunications and the wireless communications services.

OFCOM recently released the new Advanced Radio Amateur Examination. This new syllabus was developed with the help of a working group from the RSGB. Examinations for this new level of licence have been scheduled by the RSGB in February, April and June.

USA licencing

The ARRL has asked the FCC to create a new entry level Amateur Radio licence that would include HF phone privileges without requiring Morse code.

USA and BPL

The FCC has given notice of proposed rule making on Broadband Internet delivery over power line systems. The document (ET Docket 04-37) says the FCC is "cognizant that the possibility of widespread operation of Access BPL raises interference concerns that we must protect licensed radio services from any harmful interference that may occur". We hope the ACA will monitor this and follow a similar strong line.

Croatia

Croatia radio amateurs are the first country in Region 1 to benefit from the 40 metre expansion proposed at WRC-03. They can now operate up to 7,200 kHz on a shared basis with a maximum power of 1,000 watts PEP. They no longer have to pass a Morse code test for access to the HF bands, and have only two classes of licence, Full and Beginners'. So look for lots of 9A stations on HF.

RSGB and the RCF

The RSGB has set up a new foundation known as the Radio Communications Foundation. This is a charity to promote the awareness of the importance of Radio Communications in our every day life. The RCF will provide a channel through which funds can be raised for education projects such as school scholarships for young students, etc.

Denmark

The Danish Information Technology & Telecom Agency has announced new regulations for Radio Amateurs in Denmark. The main feature of the new regulations that came into effect on 1st February, is the elimination of the Morse code examination for the HF bands. They have also been allocated parts of the 4 metre band (70MHz).

Information for this column was sourced from the RSGB & ARRL newsletters.

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E & OE

AR/AA

ALARA

Christine Taylor VK5CTY

vk5cty@vk5cty or geencee@picknowl.com.au

The AGM will be held on the first Monday in May – 3rd May 2004. It will be held at the normal time for the Monday Nets in winter, 1000Zulu, on 3580+/- MHz. Please call in. We are proud of the fact that we have a good attendance for our AGMs so make this one equally as good.

We do have a short General Meeting after the AGM but then there is time for a chat. We would love to hear your voice.

The Gosford Field Day

Thanks to Dot VK2DB ALARA was represented at the Gosford Field Day, as usual. Dot sends this report:-

The Central Coast Field Day was held at Wyong Racecourse on 29th February and as normal was a beaut day.

My son Peter VK2ZCU always goes to Wyong early and sets up the table and banners for me. He is then there early enough to grab a bargain if something takes his eye. Nancy (XYL of John VK2EH) assisted me at the ALARA table as she usually does but this time didn't have her knitting with her. It is usually an interesting talking point as she does such intricate patterns. I had my handcraft (crochet) with me and showed it to some of the ladies but didn't have time to work on it.

Visitors to the table included Karen VK2AKB and her OM Peter VK2EHQ, Agnes VK2GWI and her OM Henk VK2GWK and Nina VK2INZ who rejoined ALARA. She hopes to be back on air soon but at present is unable to set up a radio station in the flat.

Pat, XYL of Ian VK2ZIO who runs a Museum of Military Radios, told us of the perplexity, effort and humour of moving the museum from Castle Hill to Kurrajong. Ian always takes some interesting items from his museum to show at the field day.

There were many members and XYLs

of the Hornsby club who visited the table during the day. We have a 'bag and buys minding service' there for them as we have a large table and long bench seat where a lot of things can be tucked out of the way.

Ernie VK1LK came by to say hello with his warm friendly smile and told us that unfortunately Linden VK1LSO was unable to attend.

There were no ladies from Queensland this time and I missed having them there.

My OM John VK2ZOI took a long time to decide whether to buy a new rig or not and by the time he did decide (then ask my permission), they were all sold. We saw a lot of those radios tucked under other

peoples' arms.

One of the Hornsby club members, who bought one, was heard to comment that he would have to let his XYL get a new sewing machine now. We think the stand that sold them was almost cleared out of all stock, possibly because of the removal of CW.

I was lucky to have bought a new VK callbook early as they all went too.

It sounds as if a good time was had by all. A suitable amount of money changed hands as well as the opportunity for some renewed friendships, which is surely one of the functions of a Field Day.



(L-to-R) Nina VK2INZ, Dot VK2DB and Nancy at the ALARA table

International YL Meet in Korea

If you are planning to travel, I hope you have included the upcoming YL International Meeting in Seoul. The official meeting runs from Oct 8 to 11 but several tours are arranged to follow, for those who wish to see more of the country.

I know Maria VK5BMT from Adelaide and Rajja SM0HNV have arranged to be there but I am sure there will be a number of others we will know from our own ALARAMEETS or from the International Meet in Hamilton.

Unfortunately we can't all go but wouldn't it be marvellous if we could?

Luncheons

The "Duke of York" was quite a nice place for the VK5 Luncheon but it is a little bit out of town – well it is off the main drag of Rundle Mall – so we may be making another change.

HOWEVER, please note, if this comes out before Easter, there will be no April Luncheon in VK5 as that will be Good Friday. It is the first time this has happened since we started having regular lunches, but it had to happen sometime.

It is nice to know that people do read the column.

Thanks for taking up the challenge, Bill, VK2WJC. It was an interesting article and shows what fun you can have with kids and JOTA.



Myrna VK5YW, Meg VK5YG, Maria VK5BMT and Jean VK5TSX.

International YL Meet October 8 to 11, 2004

Adelaide Hills Amateur Radio Society

The AGM had an unusual start this year. Finding ourselves temporarily locked out of our usual venue, the meeting began in the pleasant evening open air. With the meeting room finally unlocked, we adjourned there for a very interesting talk by John VK5EMI about his experiences working towards his DXCC.

He illustrated the talk with a powerpoint presentation of some of his QSL cards and stories about the people he had met either on the air or in person through his radio contacts.

Fleurieu Group

Another pleasant luncheon and afternoon was spent at Goolwa with this group. There are only five or six active amateurs living in and around Goolwa. They speak to each other regularly on 20 metres and invite others with some connection to that area to share lunch with them, every three months.

One member, Garry VK5ZK, also a member of AHARS, had his name in the local paper recently. He is the technical expert for the Port Elliott IT Access Centre (PETAC). Garry services the computers including the virus software and recently installed a firewall in the network.

North East Radio Club

The year has started off with some exciting events. January meeting we visited the Heights Observatory for some star gazing, in February the club made a visit to the Aviation museum at Port Adelaide. The March meeting was a visit to the Barossa club for a BBQ night. We showed a power point presentation of the removal of VK5RHO to its new site.

Meetings are held on the second Friday of each month at the Ardornish Primary School, Saarinen Ave St Agnes. The club has undertaken a mail out to local Amateurs, inviting them to come along and join with our activities. Visitors and new members are always welcome.

The last Friday of January we started a course on use and programming of the Atmel microcontrollers. Rob Payne, VK5PR, is leading a group of 15 in learning of these devices. Possible projects are a shack clock, digital meters and an ATU. Norm VK5ZAH has

The election of committee members was simple as there were only as many nominations as required and the committee was unchanged. However, the club members were warned that there would be changes next year, and they were asked if they were prepared to offer their services, to do so before the end of the year.

The fees for the coming year have been set at \$25, but, to encourage prompt payment, all fees paid before the end of April will be discounted by \$5. to \$20.



PETAC has both IBM and Mac computers so both can be experienced by everyone. Negotiations with Telstra for its ISDN service have not long been concluded with special conditions available to locals who connect through it or to ADSL.

Christine Taylor VK5CTY

manufactured printed circuit boards for the programming interface and Atmel chip. These were constructed over two Saturdays, all worked fine when tested. These extra Friday nights will continue until mid year when it is hoped to start another series of courses.

Upcoming events for the club are,

- April 16th, Rob Gurr will speak on South Australian involvement with Sputnik 1 and then dipole antennas.
- Saturday April 17th is our Annual Buy and sell.
- May 14th, Alex McCallum will talk on the Pedal Prix.
- June 11th will be a presentation on computer log keeping.
- July 9th. Club AGM. Food and refreshments will be provided.

I can be contacted on 08 8396 1673 or vk5amk@chariot.net.au.

David Clegg, VK5AMK, NERC Secretary

By the time you read this the John Moyle Memorial Field day will have come and gone but AHARS is pleased to announce that again they won their section, (HF only Multi-operator) of the 2003 Contest and that they came 7th overall in the Summer UHF/VFH Contest. Why doesn't your club participate and give them competition. It is a lot of fun and a good practice at using equipment in the field in case of an emergency situation.

Christine Taylor VK5CTY

Brisbane Amateur Radio Club

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C O D A R

Yes I found a new one. This one is down in the 13 MHz band, far enough not to interfere with our 14 MHz band!

According to our Local Darwin Radio Station, there will be more Codar Transmitters/Receivers to be installed 'later' this year between VK4 in the East and VK9 in the west. Here is hoping they will 'stay off' the Amateur Radio Bands.

During the first full weekend in February, the FOC Club has its annual; "Marathon Weekend" 14020—14030 and at approx 1200 a 'Grey Noise' signal appeared on 14025, S9 steady to the direction of Darwin. This blotted out all FOC Activity. At the time we had a visit from US Navy ships, so I left it at that. Did not hear the 'Grey Noise' after that. Another transmitter, upper and lower sideband, started transmitting just before 0800 for a couple of days, 2 x NOns up to 0800 when some sort of traffic was transmitted on both sidebands. Maybe

a test transmission as they were never heard again.

VOA has been a nuisance on 14.075 at VK6XW QTH. This seems to be a daily occurrence at 2200 when they are transmitting in Indonesian. This seems to be the 'old' problem with the Philippine transmitters which they did 'FIX' some time ago.

Mr Wilschefski VK4DU, could you PLEASE advise VOA about their straying transmitter.

Also could you please keep an 'EYE' on 14.025 as this would be a BIG disaster if CODAR were to be transmitting on the 14 MHz Band.

I have been monitoring the 10.1MHz band during the month.

The Indonesians in KUPANG, TIMOR, have set up base on 10.125 which they call MONITOR, (after the Big Goanna?) The base station is very strong here in Humpty Doo and calling in stations vary

in signal strength. They are very busy and completely blot out any amateur radio traffic.

There are other Indonesian intruders spread out every 5 kHz. If nothing can be DONE to remove these Intruders, it looks like the 10.1 MHz Band will be 'Lost' to amateur radio.

Karl VK6XW, reports 212 intruders on the 14 MHz Band. They are mainly Indonesians and Chinese dialect speaking (Northern Asians?). It seems that the lower end of 14 MHz, 14.000-14100, has less Indonesian intruders, maybe they have moved to lower bands??

Wayne, VK4ZRT, reports 4 UI intruders on 7 MHz band and 9 UI intruders on the 14 MHz Band.

That is it for this month... Wishing all the best

PS: anyone have a spare BroadBand?

Club News

South Coast Amateur Radio Club Inc.

SCARC held its Annual General Meeting on Wed 25th Feb 2004, where the Committee for 2004/05 were nominated and elected. The following members were elected into the following positions:

Chairman: Barry Bates VK5KBJ
Secretary: Stef Daniels VK5HSX
Treasurer: Neville Pudney VK5ZHP
Committee: Sam Adcock VK5KSA
Steve Callow VK5PCY
Steve Harris VK5HBE

Thanks goes out to the previous Committee who contributed to the operation of 2003/04.

The AGM also saw the presentation of the Annual Russell Smith Memorial Award for 2003. The award is presented to the member who has contributed the most to Amateur Radio in the pursuit of the aims of the South Coast Amateur Radio Club judged annually by its members. This was awarded to Stef

Daniels VK5HSX, with a presentation of a Certificate and name engraved on a trophy displayed in the Clubrooms. The previous winners of this award were also presented with a Certificate. The past winners are:

1991	Bernie Samels VK5ABS
1992	Neville Thomas VK5XD
1993	Grant Willis VK5ZWI
1994	Peter Cockburn VK5TZX
1995	Peter Cockburn VK5TZX
1996	Barry Bates VK5UBJ
1997	Stef Daniels VK5HSX
1998	Grant Willis VK5ZWI
1999	Grant Willis VK5ZWI
2000	Barry Bates VK5KBJ
2001	Grant Willis VK5ZWI
2002-2003	Barry Bates VK5KBJ

Congratulations to those who received this award. It's quite an honour as it is decided by your fellow members.

One final award was presented to a member, who was one of the founding

members of the club, who has contributed enormous efforts to the club. This was recognised and felt it needed recognition in the way of "Life Membership" to the South Coast Amateur Radio Club Inc. This is the first of its kind and very deserving and the recipient was Bernie Samels VK5ABS.

Congratulations Bernie and thanks for your contributions over the years and it hasn't gone unnoticed.

The South Coast Amateur Radio Club Inc. can be contacted by the following methods:

Website: www.scarc.org.au
Email: secretary@scarc.org.au
Post: PO Box 333 Morphett Vale, SA 5162.

©2004 SCARC Inc.

Regards,

Stef Daniels VK5HSX
SCARC Secretary & Publicity Officer.

Satellite problems are not confined to amateur radio satellites

Despite some recent unfortunate events, amateur radio satellites have a pretty good record for reliability.

If you thought that only "amateur" satellites developed problems or experienced launch difficulties or battery failures, have a look at this website:

www.sat-index.com/failures/

You will recognise many of the satellites in the list and be able to read

how in many cases they failed to live up to the hopes of the design team. Many total write-offs are listed but these are usually associated with launch vehicle failures as was the case with our own P3A, which unfortunately ended up on the ocean floor.

AMSAT fund-raising for new satellites

In case you haven't noticed, funding for the next batch of amateur radio satellites has just about bottomed-out.

The barometer on the AMSAT web page is static at around half the amount required to launch the Echo satellite. The Eagle project cannot get into full swing until Echo is in orbit and working satisfactorily.

It's becoming more and more difficult to elicit funds from satellite users. There have been many suggestions how to address the problem of funding and everything from appeals to incentives have been used in the past, but in the end it comes back to the individual. You either consider it's worth your while contributing or it's not. This decision will often be an intensely personal one and can be affected by several factors. Some considerations may be - how much money you already have invested in the satellites in the form of your own satellite station. In some cases this will amount to many thousands of dollars.

It may well depend on just how serious the individual is about a long-term interest. Whether or not you can see a 'future' for amateur satellites. You may be a newcomer just having a dabble to see if it grabs you. It would be interesting to know how many amateurs have 'dabbled' in satellites and given it away for various reasons. My feeling is that they would outnumber by many times those who decide to stick with it - and of course they are hardly likely to

have ever considered contributing.

An individual's attitude can be influenced by their own geographic location. LEOs may not be viable if you live in a deep valley or are hemmed in by trees. Similarly elliptical orbiters may not be an option if you are a flat-dweller or don't have enough space (or funds) to put up tracking antennas. If you have only a southerly aspect the DX capability of the high orbiters will pass you by out of your view.

With research and determination all these difficulties can be overcome at least in part, but the degree of difficulty can often influence the user's inclination to support the future of AMSAT, particularly if the future plans don't suit the user's immediate interests.

The current debate regarding the relative merits of FM repeater style satellites or digital/analog transponders is a good indication of people's thinking. The planning and building of a new satellite is necessarily a long-term project. You can ask for input from users and this is usually forthcoming - in profusion. The decision though, generally has to go one way or another. It can never suit everyone and some sections of the user base will always be dissatisfied or feel left out of the picture. This too can lead to a reluctance to contribute to a satellite which can be

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an e-mail mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month, in winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
9 Homer Rd,
Clarence Park, SA, 5034

Graham's e-mail address is:
vk5agr@amsat.org

seen as not meeting one's own interests particularly if you have expressed your views in a succinct, well documented manner through proper channels.

So - there are many reasons why NOT to contribute. Think about this. Virtually the whole AMSAT organisation worldwide is staffed by volunteers. Many, probably most of them also contribute financially. They are on the inside. They can see the worth and importance of contributing. They are the 'devotees' the 'party faithful' - but they simply can't do it all on their own. There are many, our own VK/ZL controllers included who give so freely of their time, expertise and energy that they are rarely heard on the satellites. They simply don't have the spare time. Most users will never have the opportunity - or like me - don't have the ability or background to act as a controller.

We may never get to helping in the planning or construction of an amateur radio satellite or produce a newsletter or give a talk on satellite communications at a club meeting. But we enjoy the fruits of the labour of those who can and do. Please consider this when making up your mind whether to contribute to the satellite building funds.

Parkes radio telescope searches for AO-40

The "Parkes Observatory" is operated by the "Australia Telescope National Facility (ATNF)" which is part of the "Commonwealth Scientific and Industrial Research Organisation" (CSIRO).

Here is a summary of a message which Peter Guelzow, DB2OS recently posted on the Amsat-BB. "With our attempts to restore AO-40 we have received today significant support from "Parkes Observatory" in Australia. <http://www.parkes.atnf.csiro.au/>

The radio telescope has a diameter of 64 metre and the system noise figure is approx. 25 K. From about 6:00 UTC, a 4 MHz wide spectrum with centre frequency of 1097 MHz was scanned with high level technique in order to find the LO frequency of the AO-40 L1 receiver. A band of approx. +/- 20 KHz

around the actual LO frequency was examined intensively. Three hours were needed to prepare the setup for AO-40 and to search.

Unfortunately nothing was heard which could be a signal of AO-40! The fact that nothing was heard of the L1 receiver's LO does not lead to the conclusion that AO-40 is completely dead. The receivers of Parkes are not really fitted for frequencies below 1.25 GHz, and naturally one does not know how good the L1 receiver's LO is shielded or how much of the signal would go through the antenna to the

outside world. The L1 command receiver is continuously switched on, and it would have been good news if we had such a confirmation that the 10 V power source for the L1 receivers is still functioning. All receivers and also the IHU are supplied with the 10 V source.

All command stations are continuing to send commands to the satellite in order to switch the batteries. Peter went on to thank on behalf of AMSAT-DL, Brett Dawson VK2CBD and the team of Parkes observatory, especially Dr. John Reynolds (Officer in Charge) and John Sarkissian (Operations Scientist).

AMSAT turns thirty-five

From a recent posting on the BB by AMSAT-NA's President.

Congratulations to all AMSAT members past and present, and particularly to those far sighted individuals who 35 years ago brought AMSAT into existence. With the growth of AMSAT into international organisations based on all habitable continents, AMSAT is more than the sum of its technological parts, promoting peace, education, technology and communication skills.

I feel honoured to have had the opportunity to have taken a part in AMSAT's life. 73 Robin Haighton VE3FRH President AMSAT-NA

Still nothing heard of AO-40

At the time of writing the control stations have published no further news of their attempts to re-activate AO-40. Keep up with their efforts via the AMSAT bulletin board or the web site.

Two decades in space - UoSat-2 celebrates its 20th birthday

While we're on the subject of notable chronological events, UoSat-2, UO-11 passed a significant milestone on 1st March 2004.

To celebrate the event many operators all round the world made a special effort to listen for the beacon of UO-11 on both the 2 metre and 13cm band. From reports on the AMSAT-BB lots were successful and many were surprised that signals were so strong.

It seems to have sparked a renewed interest in listening for the telemetry from this veteran satellite. I have many wonderful memories of using UO-11 in my class work at school and weaving it into my year 11 and 12 electronics courses. Just after its launch I persuaded the keeper of the school purse strings to purchase a circuit board and set of components for the G3RUH UO-11 demodulator which we constructed during prac sessions and used for many years along with a 7 element 2 metre beam and tripod mount.

We used a hand-held transceiver to listen to UO-11's "digitalker" when it

was following an international group of skiers across the Arctic wilderness. They went from Cape Arktichevski in northern Russia via the North Pole to Ellsmere Island in northern Canada. The digitalker on UO-11 broadcast their latitude and longitude positions each day and we followed them on a large azimuthal map of the North Pole area by plotting their positions and sticking pins into the map each day. UO-11 also demonstrated the viability of "packet" style store-and-forward communication, a mode that continues to be exploited today and will no doubt be included in future amateur radio satellites.

Alongside the digital telemetry and whole-orbit data collection files, plain text news bulletins were also uploaded to the satellite each week and broadcast around the world keeping radio amateurs informed in an era before the Internet!

UO-11 is surely one of the real success stories in amateur radio satellites and the design and launch team members at University of Surrey under Dr Martin Sweeting G3YJO are all to be congratulated. It is a constant reminder to us of the state of the art of amateur radio satellite communications of 20 years ago.

Don't forget...

**Harry Angel
Sprint
April 23**

**Brisbane Amateur
Radio Club
BARCFEST
8 May 2004**

Contest Calendar April - June 2004

3-4	Apr	Elettra Marconi Contest	(CW/SSB/RTTY)
10/11	Apr	Japan International DX Contest	(CW)
17	Apr	Holyland DX Contest	(CW/SSB)
17/18	Apr	GACW CW DX Contest	(CW)
17/18	Apr	YU DX Contest	(CW/SSB)
23	Apr	Harry Angel Sprint	(CW/SSB) (Mar 04)
web site - http://www.vkham.com/contests/			
24/25	Apr	SP DX RTTY Contest	(RTTY)
1-2	May	Ten-Ten Intl. Sprint QSO Party	(CW/Digi)
1-2	May	ARI Intl. DX Contest	(CW/SSB/Digi)
8/9	May	CQ-M Intl. DX Contest	(CW/SSB/SSTV)
15/16	May	King of Spain Contest	(CW)
22	May	VK/trans-Tasman Contest	(SSB)
Web Site - http://home.iprimus.com.au/vktasman/rules.htm			
29/30	May	CQ WW WPX Contest	(CW)
5	June	VK/trans-Tasman Contest	(CW)
<i>see Web Site above</i>			
12/13	June	(?) ANARTS Contest	(RTTY)
12	June	Portugal day DX Contest	(SSB)
12	June	Asia-Pacific Sprint Contest	(SSB)
19/20	June	All Asian DX Contest	(CW)
26/27	June	Marconi Memorial Contest	(CW)
26/27	June	King of Spain Contest	(SSB)

NB: Please see the web sites listed above for copies of rules. Any problems, please email vk3js@vkham.com

Greetings to all readers

This year I took on new duties in the area of ministry to aged people in Nursing Homes. It had been my hope that someone else may have volunteered to keep these Contest Notes up to date, but instead it almost fell to the lot of our good Editor. Col. has enough to do to compile the magazine each month without adding Contest Co-ordinator's tasks to his list.

Also, a few of you were kind enough to say that you had found the notes interesting even if you were not "into" contesting. This was very encouraging to me, so I take up my pen again to try to continue some comments for you all. However, please don't let that stop anyone offering to take over the job if you feel motivated!!

DXing and Contesting – Same Thing?

We have all heard pile-ups and wondered who is calling. I have never been involved in too many, usually because I am not super-fast at picking up call signs and often because the station that caused the pile-up often gets drowned out by others hoping to get in before everyone else.

Recently I heard a DX station start to call and was able to listen to the pile-up begin. It took a few minutes, as the DX was on a band not terribly popular for such purposes. Almost at once I realized that there are stations monitoring just about every band, but they don't say anything until something "interesting" comes along.

It also occurred to me that the techniques for trying to get through pile-up for a rare DX station and for a contest are rather similar – hence my title above. No, they are not the same thing, but when you remember that a DX station and a station in a contest can produce large numbers of others hoping to attract their attention, then there are similarities.

What do YOU do in a pile-up? Tune away from it, join in the noise, or try 'tricks' to get through? If you just join in the noise, then you have little hope of being heard; but if you 'tail-end' then there is an increased possibility. How many times have you heard a DX or contest station say "the Alpha Bravo station again, please"? This means that xxxxAlpha Bravo managed to get part

of his callsign across, possibly by leaving it a fraction later to call. OK, he gets his contact and goes away. (By the way – I think it quite wrong and really inexcusable that stations do not give their *whole* callsign when calling. Perhaps that can be a future topic.)

However, have you considered calling off frequency? Seems contradictory to your aim of getting a contact? Not if you judge the frequency shift carefully. A slight offset by you in comparison with the calling station's centre frequency can often bring success, simply because the DX operator, like you, is also sick of the noise and is working hard to pick out callsigns or parts thereof. He wants to give everyone a chance, but his ears do take a battering! Sometimes he retunes slightly in the hope of picking out a callsign.

This technique of shifting frequency

is one that I have used with a small amount of success, remembering too that I usually operate QRP. This presents its own challenges and teaches such operators that they had better get something up their sleeves, or they won't get many QSOs at all!

Many DX stations operate split-frequency, but the two suggestions here can work just as well for simplex as well as split. In other words it's just a matter of technique and patience.

VK Contest Season

We are fast getting to the time of the VK contests again. I urge you all to keep an eye on the Calendar, especially as a few contests have had changes of days in the week. These are experimental in the hope that changing work patterns may still make it possible for hams to take part in our local contest events. Good luck and I hope to work you along the way.

Diary Update

Please amend last month's VK Contest Calendar to read –
28/29 August ALARA Contest (CW/SSB)
web site: www.alara.org.au

Results CQ WW DX 160 Metres Contest 2003

(VKs only Call\Score)

VK3IO 66,975
VK6VZ 44,198

Ross Hull Memorial VHF-UHF Contest 2003 - 2004: Results

Contest manager: John Martin VK3KWA

This year's contest was not well supported, with a total of only 19 logs from 11 different entrants. The winner was again Rob Ashlin VK3EK, with a very high score of 4668 points. This shows that even though the number of logs was small, there are still plenty of stations to work - although of course Rob does a very good job of working anything that moves.

Of special note also is the second highest scorer - Rex Moncur, VK7MO. Rex is the first VK7 in some years to make a really serious effort in the contest, and he did exceptionally well with by far the highest score on 2 metres. This is a major achievement given his location in southern VK7.

In Section B, Rob also had a runaway win, with Peter Freeman VK3KAI coming second. Congratulations to all concerned, including all other entrants who made good scores in spite of indifferent conditions and low activity.

After some years with no rule changes, it is clearly time for an overhaul. Activity in VK2 is far lower than it

should be, and there were no logs from VK1 or VK5, and only one from VK6. And for the first time there was no log at all from VK4. I know that interest in VHF DX isn't as high as it used to be, but we must be able to do better than this.

One suggestion has been to take another look at 6 metres. The rules were designed to keep its scoring potential at about the same level as the higher bands, but most people aren't making any

serious use of the band. Several amateurs in the less populated states have pointed out that they can't be competitive unless they can get a reasonable score on 6 metres, so there isn't much incentive for them to make an effort on the higher bands either. A change to the 6 metre scoring might increase activity, and hopefully it might also have a flow-on effect for activity on the higher bands.

Ross Hull Contest 2003 - 2004

Call	Name	6 m	2 m	70 cm	23 cm	12 cm	9 cm	6 cm	3 cm	TOTAL
Section A: Best 7 Days										
VK3EK	R. Ashlin	82	1139	1415	912	520	-	240	360	4668
VK7MO	R. Moncur	78	2906	653	144	-	-	-	-	3781
VK3ZUX	D. Johnstone	165	672	462	248	20	-	20	30	1617
VK3UH	L. Mostert	131	477	395	-	-	-	-	-	1003
VK3KAI	P. Freeman	9	114	170	200	140	40	90	100	863
VK2TG	R. Demklw	8	537	110	-	-	-	-	-	653
VK3HV	G. Francis	85	177	205	120	-	-	-	-	587
VK3CY	D. Clarke	-	414	-	-	-	-	-	-	414
VK2TWO	A. Scott	34	45	30	-	-	-	-	-	109
VK2CZ	D. Burger	9	6	5	48	-	-	-	-	68
Section B: Best 2 Days										
VK3EK	R. Ashlin	12	483	645	352	200	-	100	120	1912
VK3KAI	P. Freeman	5	84	110	120	70	30	60	70	649
VK3UH	L. Mostert	105	201	175	-	-	-	-	-	481
VK3HV	G. Francis	5	81	100	104	30	10	-	90	420
VK2TG	R. Demklw	2	288	25	-	-	-	-	-	315
VK3CY	D. Clarke	-	183	-	-	-	-	-	-	183
VK2TWO	A. Scott	26	42	25	-	-	-	-	-	93
VK6ADI	B. Burns	91	-	-	-	-	-	-	-	91
VK2CZ	D. Burger	2	6	5	32	-	-	-	-	45

Another possible change is to drop the two day section. It doesn't seem to have much purpose now that virtually all of the two-day entrants also enter the seven day section. If everyone had to put in at least seven days during the contest period, hopefully there would be more stations active on more days. Going even further, there is no doubt that activity was at its highest some years ago when every single day of the contest counted towards the final score.

There has also been some discussion of the scoring advantages of stations using microwave bands. One suggestion has been to create two new sections in place of the existing ones. One could be an all-band section, and the other could be confined to stations that used only three or four bands. I'm not completely convinced about this idea because I don't wish to discourage microwave activity, but I'd welcome any comments on it.

It could also be possible to try some more exotic incentives - for example, bonus points to everyone in call areas that got the lowest overall scores in the previous year's contest.

I'm happy to consider any comments or suggestions that could encourage more activity. I can be contacted by mail (QTHR) or by e-mail at jmartin@xcel.net.au.

Summer VHF-UHF Field Day 2004: Results

The Summer Field Day was a great improvement over the last Spring Field Day. Propagation was fair to average but the weather was much better and a far greater number of stations took to the field. Congratulations to all section

winners, and to all operators for making another successful field day.

Some logs had to be re-scored because the entrants had cheated themselves of points! Before you send in your log, please check against the sample scoring

Contest manager: John Martin VK3KWA

sheet to make sure you haven't missed anything.

This event is steadily gaining support with a few new stations joining in each year, and I look forward to receiving a record number of logs next time.

Call	Name	8m	2 m	70 cm	23 cm	12 cm	9 cm	6 cm	3 cm	1.25 cm	TOTAL
Section A: Single Operator, 24 Hours											
VK3WRE	R. Edgar	-	456	680	832	750	610	580	580	-	4488
VK3KAI	P. Freeman	53	306	505	656	820	710	680	700	-	4430
VK3PK	L. de Vries	39	162	450	592	370	-	-	-	-	1613
VK4OE	D. Friend	44	264	365	568	320	-	-	-	-	1521
VK3HY	G. Brain	44	444	510	280	-	-	-	-	-	1278
VK5KFB	R. Mitchell	65	318	405	-	-	-	-	-	-	788
VK5AR	A. Raftery	-	291	190	-	-	-	-	-	-	481
Section B: Single Operator, 6 Hours											
VK3KAI	P. Freeman	53	306	505	560	700	700	560	580	-	3964
VK3HV	G. Francis	-	219	310	560	540	540	320	550	-	3039
VK4ZR	R. Preston	-	147	180	272	-	-	-	240	-	839
VK3DOW	K. Asplin	-	378	450	-	-	-	-	-	-	828
VK3BJM	B. Miller	34	321	455	-	-	-	-	-	-	810
VK3JS	I. Godsil	33	102	185	-	-	-	-	-	320	-
VK2TWO	A. Scott	8	42	25	-	-	-	-	-	-	75
VK4EV	R. Everingham	-	72	-	-	-	-	-	-	-	72
Section C: Multi Operator, 24 Hours											
VK3ATL	GARC (1)	163	633	855	920	500	240	-	210	-	3521
VK5SR	SERC (2)	65	548	650	520	-	-	-	430	320	2531
VK5ARC	SCARC (3)	75	585	670	-	-	-	-	-	-	1330
VK2TWR	(4)	-	402	435	384	-	-	-	-	-	1221
Section D: Multi Operator, 6 Hours											
VK3FRC	FAMPARC (5)	76	753	875	256	-	-	-	-	-	1960
VK3JA	CGARC (6)	67	252	390	-	-	-	-	-	-	709
VK3BSY	Bellarine SC (7)	-	222	250	-	-	-	-	-	-	472
Section E: Home Station, 24 Hours											
VK3FMD	C. Kahwagi	32	540	605	720	380	360	-	-	-	2637
VK3ZUX	D. Johnstone	21	180	315	376	-	-	-	-	-	892
VK3UH	L. Mostert	90	321	345	-	-	-	-	-	-	756
VK3CY	D. Clarke	-	354	-	-	-	-	-	-	-	354
VK3UBM	M. Borthwick	22	120	175	-	-	-	-	-	-	317
VK4EV	R. Everingham	-	72	110	-	-	-	-	-	-	182
VK2JHN	W. Munn	44	-	-	-	-	-	44	-	-	-

- (1) Geelong ARC: operators C. Gnaccarini VK2BRZ, D. Learmonth VK3XLD, K. Jewell VK3AKK, A. Gnaccarini (SWL).
- (2) South East Radio Group: operators T. Niven VK5NC, T. Aubrey VK5EE, M. Williamson VK5HMW, C. Hutcheson VK5DK.
- (3) South Coast ARC: operators B. Bates VK5KBJ, S. Callow VK5PCY, S. Daniels VK5HSX.
- (4) VK2TWR: operators R. Collman VK2TWR, D. Moore VK2XKE, N. Sandford VK2EL.
- (5) Frankston & Mornington Peninsula ARC: operators G. Werner VK3GER, A. Wilson VK3MUD, A. Watson (SWL).
- (6) Central Goldfields ARC: operators N. Laidlaw VK3JOO, C. Shaw VK3CJS, A. Greening VK3PA, D. Quirk VK3XDK.
- (7) Bellarine Secondary College: operators D. Rolfe VK3TRD, L. Miller (SWL), C. Lewis (SWL).

ALARA Contest Rules

Eligibility:

All licensed operators throughout the world are invited to participate. Also open to SWLs.

Object:

Participation: YL works everyone, OM's & Clubs work YLs only.

One contest (combined phone and CW) run over 30 hours.

Starts:

Saturday 28th August 2004 at 0600 hours UTC

Ends:

Sunday 29th August 2004 at 1159 hours UTC

Suggested frequencies:

Bands to be used are 3.5, 7, 14, 21, and 28 MHz only.

The following are suggested frequencies for easier location of contacts:

28.380 to 28.410

21.170 to 21.200 and 21.380 to 21.410

14.250 to 14.280

7.070 to 7.100

3.560 to 3.590

Operation:

- Every individual phone or CW contact may be counted.
- There must be an interval of greater than 1 hour between contacts with any one station on any one band and in the same mode.
- No net or list operations
- No crossmode operations.
- No crossband operations.
- All contacts must be made in accordance with operator and station licence regulations.

Procedure:

Phone: call "CQ ALARA CONTEST"

CW: YLs call "CQ TEST ALARA"

OMs call "CQ YL"

Exchanges:

ALARA member:

RS or RST, serial no. starting at 001, ALARA member, name.

YL non-member, OM or Club:

RS or RST, serial no. starting at 001, name, and whether Club station.

OMs, Clubs & SWLs work YLs only.

Scoring:

Phone: 5 points for ALARA member contacted

4 points for YL non-member contacted

3 points for OM or Club station contacted

All contacts made on CW count for double points

OM, SWL, 5 points for ALARA member logged

& Club: 4 points for YL non-member logged

Logs:

Single log entry. Logs must show date/time UTC, band, mode, callsign worked, report & serial no. sent, report & serial no. received, name of operator of station worked, whether it is a Club station, and points claimed.

LOGS MUST BE SIGNED. Logs also to show full name, callsign and address of operator, and show final score (points claimed). Logs must be legible. No carbon copies. No logs will be returned. Decision of the Contest Manager will be final, and no correspondence will be entered into. Logs must be received by the Contest Manager by: 31st October, 2003.

Contest Manager:

Mrs. Marilyn Syme VK3DMS

99 Magnolia Ave.

Mildura. 3500 Vic. Australia

Or: alaracontest@wia.org.au

Certificates will be awarded for the following:

- Top score overall
- Top score phone only
- Top score Australian YL CW
- Top score ALARA member in each country and VK call area
- Top score YL non-member in each continent
- Top score OM in each continent
- Top score SWL in each continent
- Top score VK novice
- Top score overseas YL CW
- Top score VK Club station

Trophies will be awarded to the following:

- Top scoring Australian YL
- Top scoring DX YL

Club Stations:

Operators of Club stations may use the Club call only for contacts, and MUST identify each contact as with a Club station. Use of personal callsigns while operating as a Club member is not permitted.

Sample Log:

Date	Time UTC	Band MHz	Mode	Callsign	RS(T) & Serial No. Sent	RS(T) & Serial No. Rcd	Name	Points
30/08	0135	28	SSB	VK6DE	59001	58028	Bev	5
	0141	21	CW	VK3KS	599002	599045	Mavis	10
	0600	14	SSB	VK8FA	59025	59011	Aimee	5
	1100	3.5	CW	VK7LUV	599129	599004	Susan	10
	1103	3.5	SSB	VK3BSP	59130	59006	Joe (Club)	3

VHF/UHF - An expanding world

David Smith VK3HZ - vk3hz@wia.org.au

Leigh Rainbird VK2KRR -

vk2krr@telstra.com

Weak Signal

David Smith VK3HZ

The central east coast of Australia seems to be having a run of good conditions to the east, to the land of the ZL. According to Gordon VK2ZAB, there have been at least 19 days this season in which contacts from Australia to New Zealand, on bands 2 m and higher, have occurred.

On 14/2, Gordon VK2ZAB and Ross VK2DVZ worked Nick ZL1IU on 2 m. The Auckland 2 m beacon was audible to Gordon. John VK2TK could also hear the beacon, but couldn't hear Nick.

On 21/2, VK2DVZ worked ZL1IU on 2 m, 70 cm and 23 cm. VK2FG and VK2TG also worked ZL1IU on 2 m. VK2DVZ also worked ZL1TPH/P on 2 m.

On 22/2 Doug VK4OE portable on Mt Coot-ha using a halo on 2 m worked Nick ZL1IU. As he was departing, Ron

VK4KDD arrived with an IC-910 and 5WL(1) yagi and received a 5/7 report. Bill VK4LC, from his home QTH, also worked Nick.

On 4/3 VK2ZAB worked ZL1IU on 2 m and 70 cm, and Bob ZL3TY on 2 m. VK2TK also worked both ZL stations on 2 m, Nick several times during the day.

Things haven't been totally quiet in the south of the country either. On 16/2, a high-pressure cell settled over the Bight producing several days of good conditions from the southeast to the southwest of the continent.

On the morning of 16/2, the 70 cm VK6RST beacon near Albany was heard in Melbourne, peaking to S3. No sign of the 2 m beacon. Daryl VK6KDC worked Charlie VK3FMD and David VK3HZ on 2 m with attempts on 70 cm not

succeeding. Wally VK6WG also appeared and worked many Melbourne stations on 2 m. That evening, Wally reappeared on the band having done some hasty repairs to his 70 cm setup, unfortunately without success.

On 17/2, the 2 m VK6REP beacon from Esperance was audible in Melbourne, reaching S5 at this QTH. Wally VK6WG was again working into Melbourne.

For the next 5 days, conditions between Adelaide and Melbourne were excellent with many stations working on 2 m and 70 cm.

On 19/2, Gordon VK2ZAB in Sydney worked Phil VK5AKK in Adelaide on 2 m. A contact of this sort is a rare event because of the difficult path between the two cities.

Morning Activity/Aircraft Net

For some time, morning activity up and down the east coast utilising aircraft enhancement has been split between two frequencies. On weekdays, 144.1 MHz was the calling frequency while on weekends, this shifted to 144.2 MHz.

As the result of an informal poll on the VK-VHF email reflector, it was agreed by a large number of the operators involved that the calling frequency for this activity be changed to 144.2 MHz on ALL days.

As always, once a contact is established, operators are encouraged to QSY off the calling frequency for any sort of extended QSO. This is especially important with aircraft enhancement because of the short duration of the openings.

Beacons

The VK3RLP beacon on 2403.532 MHz at Frankston, Victoria is back on air. It is running one watt into 4 corner reflectors on top of the South East Water storage tank overlooking Port Phillip Bay and Melbourne. The antennas are pointing towards Mt Gambier, Perth, Sydney and

East Gippsland. Signal reports are requested to John VK3YTV at mlejohndi@bigpond.com

It seems that a mysterious technical glitch is causing the new 70 cm VK3RGL beacon near Geelong on 432.530 to drift gradually upwards in frequency - 1.6

kHz in 6 weeks. Some adjustments have been made and Chas VK3BRZ would like reports, particularly from those who can accurately measure its frequency, by email at CGNACCAR@gordontafe.edu.au.

Digital Modes

Rex Moncur - VK7MO

Joe Taylor K1JT has released a new version of WSJT (version 4.5.1) with enhancements for FSK441 and JT65. It can be downloaded at the following site: <http://pulsar.princeton.edu/~joe/K1JT/>

FSK441 now has Forward Error Correction (FEC) designed to reduce the number of false decodes. As well the

former single tone special messages for R26, R27, RRR and 73 are now produced by double tone messages that give around 6 dB improvement in decoding with a significant reduction in false decodes. The program now has three FSK441 sub-modes as follows:

FSK441A: the original mode that uses

three tones for each text character and has no provision for FEC. It uses single tones for special messages.

FSK441B: this uses four tones per text character to allow FEC and uses dual tones for special messages

FSK441C: this uses seven tones per text character and allows much more

robust FEC and also uses dual tones for special messages.

The penalty of the FEC sub-modes is that FSK441B requires a 66% longer ping and FSK441C 133% longer, but this can be offset by setting the detection levels lower as the FEC gives far fewer false decodes. Joe Taylor has suggested that FSK441B will be the best mode for 2 m where pings are short and that FSK441C might prove best for 6 m where pings are longer. Initial tests by VK operators indicate that the dual tone

messages are a significant improvement and support Joe Taylor's view that FSK441B has an advantage for 2 m but more extensive testing will be required.

JT65 has been up-graded with what Joe Taylor calls a "soft" decoder that provides a 1 dB improvement. 1 dB is significant on EME and well worth it. Leigh VK2KRR has been using the new version on EME and is impressed with its performance. JT65 also has sub-modes called JT65A, JT65B and JT65C.

JT65A is the more sensitive but requires very good frequency stability, JT65B is more tolerant of frequency instability and JT65C even more so at the expense of about 1 dB in sensitivity.

Joe Taylor is seeking feedback on the performance of the A, B and C of the sub-modes with a view to reducing the numbers of sub-modes in future versions or at least reaching a consensus as to which sub-modes should be used on each band.

2 m & 70 cm FM DX

Leigh Rainbird - VK2KRR

Thankfully, the conditions in February for Australia's southern FM DX stations were quite a bit better than the second half of January, which was a shocker. Things are still relatively quiet for our more northern counterparts in Queensland while they wait for the beginning of their dry season and a return to more stable weather.

There have been a number of longer distance paths in February as well as very strong shorter paths, and a monster duct, which was outstanding. There were a number of new stations not usually heard on the DX scene this month, which is good to see.

One issue of concern lately has been interference on the FM voice simplex frequencies by applications such as IRLP, Echo Link and other linking and repeating functions. This is particularly an issue on 146.500 and 439.000 the National FM Simplex Voice Calling frequencies. Could people please be aware of this and remind others in your club or locality.

February was a really good month for 2 & 70 FM DX and I am having to really cut back on many contacts and reports or it could go on for a number of pages.

On the 7th and 8th of February, a few simplex contacts noted, Les VK3TJ in Mildura worked VK2KRR on 146.5 @ 466 km. Graeme VK5GH near Mt Barker S.A worked VK2KRR on 146.5 @ 750 km, good signal from Graeme at a 5/7.

On the Sunday morning VK2KRR had an interesting QSO via the Canberra 146.950 repeater with John VK2FAD near Newcastle. Interesting because it is quite rare to hear a station on the coast north of Sydney getting into the Canberra repeater. John is approximately

350 km from Canberra and was running an omni directional antenna, and being down in a coastal area and having to come up over the mountains is a good effort.

But, meanwhile, the same morning, on the other side of the country, VK6 operators who were alert and awake were in for another morning of terrific DX action, courtesy of Brian VK5UBC in Gawler and also VK5KFB.

Brian was out to relive the magnificent effort from Boxing Day 2003. He did that and more! Not only did Brian work back into the Boddington repeater @ 2062 km on 147.250, he also worked to the Katanning repeater on 147.000 @ 1950 km. And later to the Mandurah 146.900 repeater on Mt William, which re set the VK5 Division repeater record to 2102 km, a great effort.

Eventually, as Western Australia got out of bed, Brian was able to work via the repeaters with VK6IQ, 6ZKO, 6KZ, 6HRC, 6ZCR, 6ZGU. VK5KFB believed to be near Adelaide was also able to work to Boddington. Again no signals were copied on reverse.

It certainly is amazing to hear a signal come in to your local repeater from a great distance away, a 2000+ km distance even more so. When you think of how far that signal has travelled, over a path that is rarely present, and that signal is preserved well enough along its travels to present itself just like a local signal to the repeater, it's absolutely fascinating.

Further on into the month, a duct began to be workable, beginning on the 15th. This duct would hang around for almost a week and got better the longer it stayed. The conditions finished up around Saturday the 21st of February,

and have been described by some as the best conditions this summer season. Some massive signals were experienced, some very long paths worked by some, and some people were working to places they never thought possible.

I will just give a brief summary here as there was so much going on. Lucky I did not get many reports from others about this week's activities or they'd never fit in the magazine.

On the morning on the 16th, VK5UBC was able to work VK2KRR on 439.000 establishing new VK2 and VK5 Division FM DX records for 70 cm @ 764 km.

Later that evening VK5UBC worked to the Albany repeater on 146.725 a distance of 1900 km. First time to Albany for Brian, who worked John 6KJS and Brian 6YUA/m Albany via the repeater.

Showing just how good conditions were in the evening of the 17th of February were a group of operators who were all able to congregate on 147.275 the Otway Ranges repeater. These stations were VK3JNY, 3XOR, 3VTX, 3TJS, 2KRR, 5MM, 5KGP, 5ACY and 5UBC. Graham VK5KGP is located in Victor Harbor and was working the Otways repeater with an antenna mounted inside his house! The distance is around 550 km.

After this 5UBC made another series of contacts to the west. Brian worked to the Albany repeater with Frank VK6DM and then was able to easily work Frank on 146.500 simplex with up to 5/9 signals over the 1900 km path. New VK5 Division 2 m simplex record.

Morning of the 18th, big signals out there. A number of stations were worked simplex. Brenton VK5JBJ at Meningie was a 5/6 on 2 m @ 702 km, 3.43 am.

Pure homebrew

Instruments of Amplification by H.P. Friedrichs, ISBN 0-967 1905-1-7 is a recent release from the ARRL catalogue and is now being stocked in the Technical Bookshop.

Reviewed by Chris VK2QV, Technical Bookshop Manager

You have not read a book like this before. These are the final words of the Introduction and after becoming engrossed in this book I have to agree. This book is not homebrewing a la Diamond, the level is more basic, yet at the same time just as intricate - for here we shown to build projects completely from scratch.

The author painstakingly built "low tech amplifiers, vacuum tubes and semiconductors in his workshop and then observed the results. There have been failures and moderate successes. Don't expect to construct a high power linear amplifier from this book: that is not what it is about. The book is more about experimentation, the satisfaction

of building something and observing the results, the culmination of ideas put into practice.

The projects in the book may seem very low-tech in today's miniaturized, black-box push button culture. Electronics from days gone by are regarded as boatanchors, leg-warmers and curios. The author points out that, and he gives the "wagon wheel" as an example, something may appear low-tech until you actually try to build or repair it.

There are chapters on Basic Tools, Safety First and "What is an Amplifier?" before moving into some practical projects. There is an extensive list of references at the end of each chapter.

Explanations are straight-forward and not overly technical in nature. The amplifier experiments are a must-read!

The book contains seventeen chapters in all plus three appendices. It is softcover with 297 pages, photos are in black and white and there are numerous illustrations. Put it in your library, next to "How Things Work".

H.P.Friedrichs also happens to hold the callsign AC7ZL and he is the author of another book which he published himself, *Voice of the Crystal*.

I recommend this book as a good read for home brewers and experimenters in particular. The bookshop Catalogue number is TEC43-9163 and is priced at \$42.00 inc GST. Member price is \$37.80.

ar

VHF/UHF an expanding world continued

Brenton was also worked on 70 cm also 5/6 signal. Rob VK5MM at Mt Barker was 5/7 on 2 m. Brian VK3UBC at Mildura was 5/5 on 2 m. Dion VK7YBI made it to the Barossa Valley 2 m repeater at around 11.45 am and made a new repeater distance record for himself @ 947 km. Amazingly conditions lasted till about 12.15 pm here!! before it suddenly was lost and all was quiet again.

On Thursday 19th there was a Monster Duct! This would have to be the best duct opening I have worked. I won't go into how many repeaters were coming in, but lets just say, most repeaters in VK3 and VK5 on 2 m and 70 cm were full-scale signals or very close to it.

List of simplex FM contacts worked here before I went to work - VK5MM, Mt Barker @ 747 km on 2 & 70; VK3TJ, Mildura @ 466 km on 2 m; VK5JSR near Barossa Valley @ 770 km on 2 m; VK3MTV, Mildura @ 466 km on 2 & 70; VK5UBC, Gawler @ 784 km on 2 & 70; VK5ZLT, Keith @ 814 km on 2 m; VK3UBC, Mildura @ 466 km on 2 & 70; VK5XE, Claire @ 791 km on 2 & 70.

There was transmissions left right and centre and where to turn to next was a

problem. There were contacts I heard that I could not believe I was hearing. I noted VK3MTV, VK5UBC and VK3LY into Wagga 2 m. VK3MTV in Mildura and VK5UBC in Gawler made it to one of the highest repeaters in Australia being Canberra's Mt Glinini 146.950. I heard them both talking with VK1OD. I also heard stations in Wagga and Young NSW, getting to Barossa Valley SA.

The simplex contact on 439.000 between VK5XE and VK2KRR reset the 70 cm FM DX records again for VK5 and VK2 to 791 km.

In the morning of Friday the 20th there was a shift in conditions in eastern NSW. Steve VK2ZSZ in Queanbeyan worked Graham VK2GRB in Scone via the 2RDX repeater in the Western Blue Mountains. Steve was also able to get to Rylstone, Young, Grenfell, and Goulburn.

Ian VK2XB who was mobile near Young, was amazingly able to work to the Rylstone repeater over a mountainous 230 km path.

VK2KRR worked as far as the Walcha repeater @ 810 km, also to Knight's Hill near Wollongong, the Southern Highlands and Mt Bindo.

Alan VK2KAW in Wagga also had a

similar coverage area to VK2KRR. It was quite interesting to see the extent of the propagation.

On the final day Saturday the 21st, signals again were brilliant. Many stations were able to work each other simplex. Some of the more difficult simplex contacts into VK2KRR near Wagga were from Jim VK5AJW at Cowell, up to 5/9 on 146.500 @ 950 km. VK5KXC, 3LY, 3XQA/p were also worked on 2 m. Also 3AEF, 5UBC, 5MM, 3JGL were worked on both 2 & 70.

Well done to Rob VK1ZQR in Canberra who is always listening out to the west and finally got a path into Murray Bridge and possibly other repeaters around 900 km. VK5UBC also worked the Canberra 146.950 repeater but the two failed to make it on simplex.

No doubt there were a lot of other contacts that occurred that I did not have a chance to listen to or was never told about. Well done to everyone and keep up the good work.

That's about it for this month. Please remember to send through any 2 & 70 FM DX reports to Leigh VK2KRR at vk2krr@telstra.com.

ar

Gridsquare Standings

at 22 February 2004

144 MHz Terrestrial

VK2FLR	Mike	108
VK2KU	Guy	102
VK3FMD	Charlie	84
VK22AB	Gordon	77 SSB
VK2KU	Guy	69 SSB
VK3BRZ	Chas	68 SSB
VK3KAI	Peter	63
VK2DVZ	Ross	62 SSB
VK3EK	Rob	62 SSB
VK2TK	John	58
VK3CY	Des	58
VK3XLD	David	55 SSB
VK2EI	Neil	54
VK3TMP	Max	53
VK3ZLS	Les	51 SSB
VK3BDL	Mike	50
VK2DXE	Alan	47
VK2KU	Guy	47 Digi
VK3BJM	Barry	47 SSB
VK7MO	Rex	47
VK3WRE	Ralph	46 SSB
VK3KAI	Peter	45 SSB
VK2DXE	Alan	43 SSB
VK3CAT	Tony	39
VK3KEG	Trevor	39
VK4TZL	Glenn	38
VK2TK	John	34 SSB
VK3HZ	David	33
VK4KZR	Rod	33
VK3ZUX	Denis	32 SSB
VK7MO	Rex	30 SSB
VK3KME	Chris	28 SSB
VK6HK	Don	28
VK2KRR	Leigh	27 FM
VK4DFE	Chris	26 SSB
VK2TK	John	25 Digi
VK7MO	Rex	24 Digi
VK2TG	Bob	23 SSB
VK3YB	Phil	23
VK5ACY	Bill	22 SSB
VK3KAI	Peter	21 Digi
VK6KZ	Wally	20
VK3BBB	Brian	19
VK3TLW	Mark	19 SSB
VK3AL	Alan	18 SSB
VK6KZ/p	Wally	16
VK3ZYC	Jim	14 SSB
VK3DMW	Ken	13
VK2CZ	David	12
VK2ZSJ	Steve	12
VK2EAH	Andy	11
VK2EI	Neil	11 Digi
VK2DXE/p	Alan	10
VK2EAH	Andy	10 SSB
VK3ANP	David	10
VK3BG	Ed	6 SSB
VK2TWO	Andrew	5
VK3ZDR	David	5 SSB
VK2AKR	Neil	3 Digi

144 MHz EME

VK2DXE	Alan	3 Digi
VK4TJ	John	3 SSB
VK2AKR	Neil	1 SSB
VK2EAH	Andy	1 Digi
VK3XLD	David	1 Digi
VK2FLR	Mike	110
VK2KU	Guy	83
VK3CY	Des	70
VK2KRR	Leigh	16
VK7MO	Rex	9
VK3KEG	Trevor	4
VK3FMD	Charlie	3
VK2DVZ	Ross	2
VK2DXE	Alan	2

432 MHz Terrestrial

VK22AB	Gordon	57 SSB
VK3BRZ	Chas	49 SSB
VK3XLD	David	46 SSB
VK3FMD	Charlie	45
VK3ZLS	Les	40 SSB
VK2KU	Guy	38
VK2KU	Guy	34 SSB
VK3EK	Rob	34 SSB
VK3CY	Des	31
VK2DVZ	Ross	30 SSB
VK3BJM	Barry	29 SSB
VK3KAI	Peter	28
VK3HZ	David	27
VK3KAI	Peter	27 SSB
VK3BDL	Mike	26
VK3WRE	Ralph	26 SSB
VK3TMP	Max	25
VK3KEG	Trevor	21
VK2TK	John	17 SSB
VK2TK	John	17
VK7MO	Rex	16
VK3CAT	Tony	14
VK3ZUX	Denis	14 SSB
VK4KZR	Rod	14
VK3TLW	Mark	13 SSB
VK6KZ	Wally	13
VK2KRR	Leigh	11 FM
VK4TZL	Glenn	11
VK3AL	Alan	10 SSB
VK3ANP	David	10
VK3YB	Phil	10
VK2TG	Bob	9 SSB
VK3BG	Ed	9 SSB
VK4DFE	Chris	9 SSB
VK3KME	Chris	8 SSB
VK6KZ/p	Wally	8
VK3BBB	Brian	7
VK2FLR	Mike	6
VK2KU	Guy	5 Digi
VK3BRZ	Chas	4 Digi
VK3XLD	David	4 Digi
VK3ZYC	Jim	4 SSB
VK2CZ	David	3

VK2TWO Andrew 3

VK3KAI	Peter	3 Digi
VK7MO	Rex	3 Digi
VK2DXE/p	Alan	2
VK4TJ	John	2 SSB
VK2AKR	Neil	1 SSB
VK2TK	John	1 Digi
VK3DMW	Ken	1

432 MHz EME

VK4KAZ	Allan	14 CW
VK3FMD	Charlie	5
VK3HZ	David	1
VK7MO	Rex	1

1296 MHz

VK3XLD	David	33 SSB
VK3BRZ	Chas	32 SSB
VK3FMD	Charlie	32
VK22AB	Gordon	29 SSB
VK3ZLS	Les	26 SSB
VK2KU	Guy	25
VK2KU	Guy	22 SSB
VK3EK	Rob	20 SSB
VK3KWA	John	19
VK3KAI	Peter	16
VK3WRE	Ralph	16 SSB
VK2DVZ	Ross	15 SSB
VK3KAI	Peter	15 SSB
VK3BDL	Mike	12
VK3BJM	Barry	12 SSB
VK3TMP	Max	11
VK2TK	John	10 SSB
VK4KZR	Rod	10
VK7MO	Rex	10
VK3HZ	David	9
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK2CZ	David	5
VK3ZYC	Jim	5
VK6KZ/p	Wally	5
VK3BVP	Shane	4
VK3YB	Phil	4
VK3ZUX	Denis	4 SSB
VK3ZYC	Jim	4 SSB
VK6KZ	Wally	4
VK2KU	Guy	3 Digi
VK3BBB	Brian	3
VK3BG	Ed	3 SSB
VK3KEG	Trevor	3
VK2DXE/p	Alan	2
VK2FLR	Mike	2
VK3CY	Des	2
VK3KAI	Peter	2 Digi
VK3KME	Chris	2 SSB
VK3XLD	David	2 Digi
VK4TJ	John	2 SSB
VK3DMW	Ken	1
VK3ZYC	Jim	1 Digi
VK4TZL	Glenn	1
VK7MO	Rex	1 Digi

2.4 GHz

VK3BRZ	Chas	11 SSB
VK3XLD	David	11 SSB
VK3WRE	Ralph	9 SSB
VK3FMD	Charlie	8
VK3KAI	Peter	7 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	4
VK3BJM	Barry	3 SSB
VK3KAI	Peter	2 Digi
VK4KZR	Rod	2
VK3TLW	Mark	1 SSB
VK3ZUX	Denis	1 SSB
VK4TZL	Glenn	1

3.4 GHz

VK3FMD	Charlie	8
VK3WRE	Ralph	6 SSB
VK3KAI	Peter	5 SSB
VK3XLD	David	4 SSB
VK6KZ	Wally	4
VK3EK	Rob	3 SSB

5.7 GHz

VK3FMD	Charlie	10
VK3WRE	Ralph	9 SSB
VK3KAI	Peter	7 SSB
VK3XLD	David	5 SSB
VK6KZ	Wally	4
VK3BJM	Barry	2 SSB
VK3EK	Rob	2
VK6BHT	Neil	2
VK3KAI	Peter	1 Digi
VK3ZUX	Denis	1 SSB

10 GHz

VK3FMD	Charlie	9
VK6BHT	Neil	9
VK3WRE	Ralph	8 SSB
VK3KAI	Peter	7 SSB
VK3XLD	David	7 SSB
VK3EK	Rob	5 SSB
VK6KZ	Wally	5
VK3TLW	Mark	3 SSB
VK3ZYC	Jim	3 SSB
VK2EI	Neil	2
VK3BJM	Barry	2 SSB
VK3ZUX	Ed	2 SSB
VK7MO	Rex	2
VK3BG	Ed	1
VK4KZR	Rod	1
VK4TZL	Glenn	1

24 GHz

VK6BHT	Neil	3
VK2EI	Neil	2
VK6KZ	Wally	2
VK3FMD	Charlie	1

474 THz

VK7MO	Rex	1
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Additions, updates and requests for the guidelines to Guy VK2KU, vk2ku@hermes.net.au, or by mail (QTHR 2002).

However note that the above email address will "die" in April 2004 when I move QTH.

The guidelines (and the latest League Table) are also

available on the website of the NSW VHF Dx Group at www.vhfdx.oz-hams.org - click on Gridsquares.

Next update of this table will be in May or June 2004.

Stations who do not confirm their status for more than 12 months may be dropped from the table.

Charles H A Armstrong VK1WW

Charlie passed away on 7 Nov. 03 after a very long illness at the age of 83. He is survived by his wife Meg, who met Charlie during the war when she was a WREN signaller at Admiralty House London and Charles was a Radio Officer in the RN at sea. They could recognise each other's Morse code before they actually met, married and lived happily ever after. 50 years on Charlie and Meg taught me Morse so well that I passed 1st try. After the war Meg and Charlie moved to Australia (Tasmania) where Charles took up a teaching position and amateur radio, building his own rig and antenna, and getting on the air on H.F.

Charlie was soon on the move again. He joined the RAAF and was posted to Wagga Wagga in the mid 50's to teach apprentices and National Service Trainees. Accommodation for married officers was very hard, so Charlie built his own house just outside the RAAF Wagga entrance gates. The first operational room in the house was the radio shack and he was soon on the air again with a VK2 callsign. In the small hours of the morning after a late mess

function Charlie would always scan the HF bands for late night contacts before bed.

Charles had regular skeds with contacts from many parts of the world and his shack was well lined with exotic QSL cards. Postings to RAAF bases in Victoria, the ACT and Butterworth qualified him for VK3 and VK1 callsigns. Not many members can claim to have had VK1, VK2, VK3 and VK7 callsigns.

During his posting to Butterworth in Malaya in the 70's Charles helped to establish the 'Radio Butterworth' service for the benefit of Service families. Charlie's silky smooth BBC accent is familiar to a great many radio amateurs all over the world and his cheery 'VK1 Whisky Whisky' will be sadly missed by all his many friends. Our deepest sympathy is extended to his family.

Submitted by Ted Holmes VK5ETH.



Rolf A Hallamore VK3ARH

It is with regret that I record the passing of Rolf VK3ARH on the 27th February at Prince Alfred Hospital after a short illness. He was 89 years old.

By following family tradition Rolf had a very successful career in commercial banking and also maintained a keen interest in technical matters throughout his life. He was well adapted to building electronic apparatus and built the family's first TV set and many amateur radio projects of exceptional quality. It would be no exaggeration to state that he could have switched from his career path in banking to a successful one in electronics had he ever desired to do so. This was emphasized when Rolf joined the RAAF at the beginning of WWII and trained in the new technology of RADAR. His first posting sent him to assist setting up a station on Millingimpi, a small island off the coast of the Northern Territory. After a few months his expertise was recognised and he was posted South to become an

instructor on RADAR. This suited Rolf because Millingimpi was not a very pleasant place to be and had been getting the attention of Jap bombers for some time. The posting South with a promotion to Sergeant Instructor therefore had quite an appeal. He completed service in this role and particularly enjoyed lecturing and still remembered the technicalities of RADAR for the rest of his life.

While in the Air Force Rolf met my cousin Elva who was in the WAAF and so began the lifelong love affair; they became engaged and married soon after the war. They were infatuated with one another and enjoyed a common interest in their beloved golf.

At the end of war Rolf achieved his first class commercial radio licence but still returned to the banking business and began climbing the corporate ladder. A promotion transferred him from Victoria to Western Australia where he

continued with amateur radio and improved his golf average. The challenge of building equipment stayed with him and he was one of the first amateurs in VK to build his own SSB transmitter. Ultimately another career advancement returned him to Victoria and he continued with the same banking establishment until his retirement. Elva, the love of his life, passed away in January 1997 and it must have been a lonely time for him, but he kept his home going and was well supported by his "Troops"; his name for his children and grand children.

All who knew him will be saddened by the loss of Rolf, the consummate gentleman, always considerate of others, a great contributor to life who was modest of his own achievements.

Our sympathy is with his children Gillian, Margaret and Leigh and their children.

Allen O'Halloran VK5OH

Over to you

New Constitution

Re the proposed constitution as published in March 2004 AR, which seeks to establish a WIA, which speaks for all radio amateurs with a single voice. This to be achieved by all members of the state divisions being members of the one Federal WIA.

I am all for the WIA speaking with a single voice. Is that not the principle reason given for the incorporation of the State-based WIA into the new federal structure in 1972? Normally I am in favour of centralised bodies and I thought that was what the Federated WIA was. Have I been wrong for the last 30 years of membership? How many voices has it been speaking with to the ACA, IARU on our behalf?

If the new constitution is not ratified by the Divisions, does the present Federal body not represent us with a single voice anymore?

Before we change anything we should carefully peruse this complicated document with particular attention to what happens to divisional property. Does clause 25, "Winding up" mean that if the WIA is in the opinion of the Directors

becomes non-viable and the WIA is wound up with due process that the remaining property, say Dural in Sydney could be given to the Ballamakanka CB Club.

It appears to me that control of the WIA could pass to non-licensed amateurs if this constitution is adopted. Clause 5.2(a) states to be a member you only have to have an interest in amateur radio. Clause 5.3(d) states the Board may establish a non-voting membership category, it does not say it has to, nor does it say once established it cannot be removed.

Let us keep full membership with voting rights for licensed radio amateurs only.

I have listed just two matters of concern to me from reading the proposed constitution. There are many others I could have mentioned.

Please read the proposed constitution carefully and do not make any decision in haste. It seems to me that an urgent adoption is being sought. I have yet to be convinced that a change from the present structure of the WIA is needed.

Neville Chivers VK2YO

Amateur Licence Exams

I had a dream –

– we were at a radio Club meeting and a chap named Stephen was talking about future directions for bringing new members into our hobby. He had spoken of the lack of concern by some of the governing bodies and then he went on to some of the various entrenched attitudes members had.

He was especially concerned about the method used for examination of would-be amateurs. "It is difficult to understand," he said, "that we tend to ignore the developments made by some of our longstanding overseas compatriots. It seems that we are saying that countries like New Zealand, South Africa, Canada and the USA are not doing a good job of examining their applicants because they allow them to have access to relevant question banks beforehand". Food for thought.

Neil Trainor VK3JL

Views expressed in the 'Over to you' column are those of the authors, and do not necessarily reflect the policies of the Wireless Institute of Australia.

Send contributions to: The Editor, Amateur Radio Magazine, 34 Hawker Crescent, Elizabeth East SA 5112
or email: edarmag@chariot.net.au

Silent Key

Brian Eccleston Cabena VK3BEC

It is with sadness that I note the passing of Brian Cabena VK3BEC on 25th February, 2004, after what the Melbourne newspaper described as "a difficult illness".

Although legally blind, radio was Brian's great interest all his life. He ran a repair business in the inner eastern suburb of Kew and as an Amateur was quite active in the 1960s and 70s on both HF and 2 metres. On air he called himself "Bec" – his initials.

Brian came from a musical family and it was in this context that my wife and I met him in the mid-1960s. Brian felt that there were serious shortcomings in the style of the ABC's presentation of its

classical music programmes. He went public with his idea of a classical music broadcasting station free of unnecessary talk and advertisements and formed The Music Broadcasting Society of Victoria.

As its Secretary in this 60s-early 70s period, Brian and I tackled the legislators of the day to change the structure of broadcasting in Australia and open up an FM band, as had happened overseas.

Thus, in July 1975, 3MBS began broadcasting on 92.7 MHz (later moved) with a transmitter designed by Brian and built by several of us as volunteers and installed over the radio repair shop in Kew.

So began the era not only of FM

broadcasting in this country, but the first radio station to be financed and staffed by volunteers – Community Radio.

Although my involvement was with administration and programming, Brian's enthusiasm for radio and broadcasting in general and his talks about AR rekindled in me an interest that I had as a boy, but did nothing about. Everyone who knew him would have to admit his determination to carry through his ideas in a patient, methodical way.

To his wife Mary and family, we extend our sympathy.

Vale Brian – a man who lived his dream!

Ian Godsil VK3JS

A VHF/UHF discone antenna

In QST for May 2003, Bob Patterson, K5DZE describes a cheap and simple way of implementing the discone antenna design.

Whilst a discone antenna does not offer any gain over normal dipoles or verticals, it does offer unique characteristics of wide bandwidth, sometimes quoted as presenting acceptable VSWR over a 10:1 frequency range. If you consider this to be a little optimistic, assuming a lesser, 3:1 range with a VSWR of less than 2:1 will allow operation on 144 to 432 MHz and everything else in between.

Bob refers to having built quite serviceable discones for use under cover that consisted of foil covered cardboard

The design referred to in this article is made from 'hardware cloth' or very stiff galvanised steel 'chicken wire', manufactured as $\frac{1}{4}$ inch square mesh. This design does not need a lot of extra support if the antenna is to be located inside a roof or attic. For outside use, a wood or PVC 'tree' can be placed inside the cone for extra support and rigidity.

To build the antenna, proceed as follows. Lay out a 5 foot length of hardware cloth. Tack the corners down so it won't roll up. Use a felt tip pen to mark out the cone and disc as per the drawing. The dimensions are calculated from the equation on the drawing

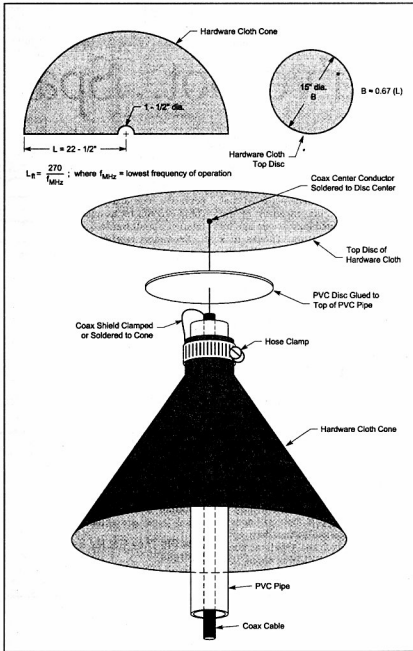
Carefully, cut out the shapes using heavy metal shears. Beware of the sharp edges. Roll the wire into the cone shape. Short lengths of wire or nuts and bolts can temporarily hold the shape together. Otherwise, fold some of the end wires into hooks to strengthen the join. Use a heavy soldering iron to spot solder the seam together. The drawing shows the general construction plus design equations. Whilst the drawing shows the top discs separated, in the final assembly, the PVC disc is glued to the PVC pipe and the coax is soldered to the top disc which is screwed to the PVC disc.

When mounted on a suitable outside support, the VSWR remained below 2:1 on both 144 MHz and 432 MHz. Whilst

any good VHF/UHF gain antenna will outperform this discone on a given frequency, none will operate consistently over such a wide bandwidth.

Note Conversions 1 inch = 25.4 mm
1 foot = 304.8 mm Editor

ar



Adelaide-Moscow

318 Brisbane-Berlin

148

April
2004

T index: 46

HF Predictions

by Evan Jarman VK3ANI

34 Alandale Court Blackburn Vic 3130

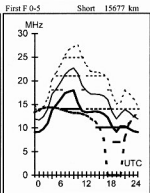
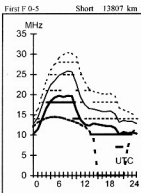
These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.

These frequencies are identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.

These predictions were made with the Ionospheric Prediction Service program: ASAP5 Version 4



Legend

- UD
 - E-MUF
 - QMF
 - F-MUF
 - ALF
 - >10%
 - >50%
 - >90%
- Time Scale

Adelaide-Osaka

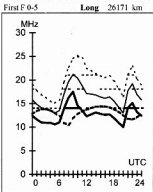
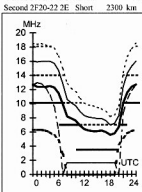
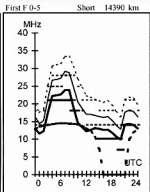
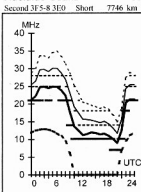
357 Brisbane-Cairo

288

Canberra-Auckland

102 Darwin-London

145



Adelaide-Pretoria

238 Brisbane-Noumea

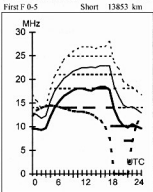
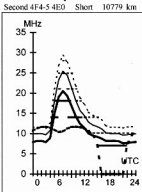
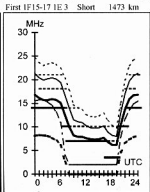
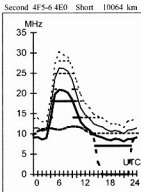
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Canberra-Capetown

219

Darwin-London

325



Adelaide-Seattle

51 Brisbane-Singapore

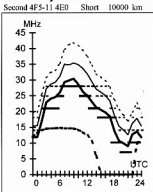
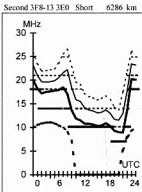
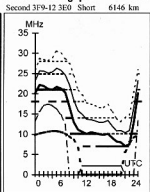
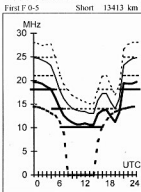
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Canberra-Manila

327

Darwin-Riyadh

295



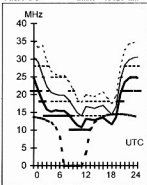
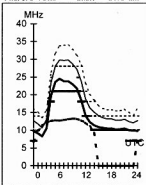
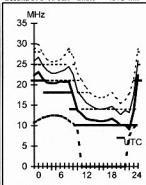
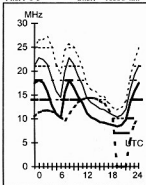
Hobart-Dakar**209 Melbourne-Bangkok****312 Perth-Harare****257 Sydney-Miami****86**

First F 0-5 Short 16556 km

Second 3F5-10 3E0 Short 7372 km

First eF3-4 3E0 Short 8496 km

First F 0-5 Short 15026 km

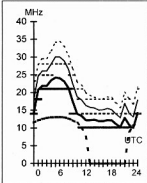
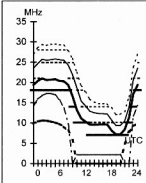
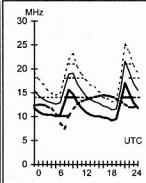
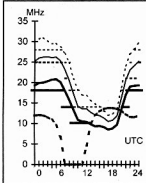
**Hobart-Lima****133 Melbourne-London****131 Perth-Port Moresby****59 Sydney-New Delhi****302**

First F 0-5 Short 12421 km

First F 0-5 Long 23118 km

First 2F9-10 2E0 Short 4073 km

Second 4F4-8 4E0 Short 10418 km

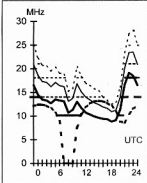
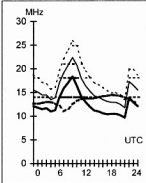
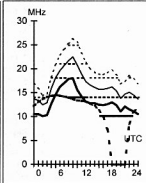
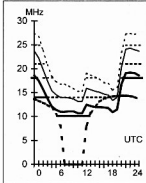
**Hobart-New York****80 Melbourne-London****311 Perth-Rome****123 Sydney-Rio De Janeiro****164**

First F 0-5 Short 16609 km

First F 0-5 Short 16906 km

First F 0-5 Long 26684 km

First F 0-5 Short 13519 km

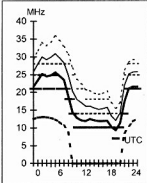
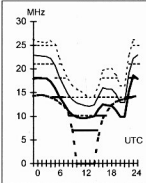
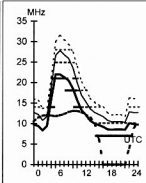
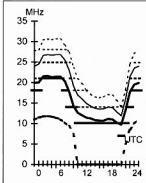
**Hobart-Seoul****344 Melbourne-Lusaka****241 Perth-Vancouver****50 Sydney-Tokyo****350**

Second 4F6-11 4E0 Short 9175 km

Second 4F3-4 4E0 Short 11153 km

First F 0-5 Short 14823 km

Second 3F4-8 3E0 Short 7825 km



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FOR SALE NSW

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(70 cm), **IC-505** (6 m), **IC-726** (HF 6 m), **IC-735** (HF) & **AT-150** tuner; **Kenpro az & el & controller; Kenwood TS-420S** HF XCVR & **PS-440S** power supply; **Racal RA17L** comms rcvr; **Tokyo Hi-Power Amps HL** (70 cm), **HL82V** (2 m), **HL86V** (6 m), **HL160V** (2 m), **HL180V** (2 m); **Tono 5000E** modem. Prices on application. Bob VK2CAN, Phone 02 9416 3727.

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* **Solid State HF general coverage Hamband XCVR** with damaged finals and/or drivers that are no fixable. Transmitter and receiver sections must work up to the driver stage. **Yaesu preferred FT0747, FT-757, FT-77. An FT-817** would be lovely. Steve VK5AIM QTHR. Phone 08 8255 7379.

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Donated ham radios for Somalia

Sam Voron VK2BVS

After a fantastic 6 months in Somalia last year it's about to happen again. My departure to Somalia is on 15 April 2004. I am looking for a team to work together to help Somali hams join the airwaves.

There are 13 Somali hams but none has a transceiver.

1. I can carry donated lightweight transceivers and power supplies (switch mode 20AMP), SWR meters and Morse code keys into Somalia.
2. If anyone can work on covering the airflight for donated heavier transceivers then DHL can get those to Somalia in 8 days from anywhere including from Australia and the USA. Send them by DHL addressed to-Radio Galkayo, Amateur Radio Club, Galkayo, Somalia. That is the complete address. Send e-mail to me and I will watch for your item.
3. I will be taking digital photos and typing stories I can E-mail to anyone that wants to use their web site to find further help for Somali hams while I am there.
4. This is not a QSL expedition and no QSL will be issued. Please wait until the Somali people have their own stations and can QSL.

5. All my time and effort will go directly to helping the Somali people get on air themselves. This involves finding donated transceivers and people outside Somalia who want to help find and send donated equipment to get Somalia on air. It will also involve training the local people.
6. I am looking for help from aerial climbers to take down and put up a HF vertical aerial on my 50 foot Hills triangular mast at Roseville 6km north of Sydney's famous bridge. Call me anytime if you like climbing.
7. Donated transceivers, power supplies, Aerial systems, SWR metres and Morse code keys can be dropped in 24hours 7days or couriered or posted to Sam Voron 2 Griffith Ave, Roseville, N.S.W., Australia 2069.
8. If you want to help while I am in Somalia then E-mail svoron@hotmail.com

Thanks, Sam VK2BVS

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The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601
President Alan Hawes
Secretary Deane Walkington
Treasurer Bob Howie

VK1WX
VK1DW
VK1BH

Broadcast schedules All frequencies MHz. All times are local.

VK1WI transmits each Thursday evening at 2000 hrs local time on VK1RGI 146.950 MHz and 438.375 MHz including the linked repeater system on VK2RGN Goulburn, VK2RHR High Range, VK2RMP Madden Plains and VK2RTW Wagga Wagga.

VK1 Home Page <http://www.vk1.wia.ampr.org>

Annual Membership Fees. Full \$80.00 Pensioner or student \$71.00. Without *Amateur Radio* \$48.00

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(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417

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Fax 02 9633 1525

President Brian Kelly
Secretary Owen Holmwood
Treasurer Noel May

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VK2AEJ
VK2YXM

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593, 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow more transmissions are provided on 3.699 and 145.850. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.

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(Office hours Tue 10.00 - 2.30)
Phone 03 9885 9261

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VK3JJB
VK3DBQ

VK3BW broadcasts on the 1st Sunday of the month at 1030 and 2000 hours. Primary frequencies are 3.615, 7.085, 10.130, FM repeaters VK3RML, 146.700, VK3RMM 147.250, VK3RWG 147.225, VK3RMU 438.075. The broadcast can also be heard on the Saturday night at 2000 hours before the 1st Sunday. Major news appears on the packet radio network under the callign VK3ZWI, and the WIA Victoria website.

Annual Membership Fees. Full \$87.00 Pensioner or student \$72.00. Without *Amateur Radio* \$55.00

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: office@w4q.powerup.com.au
Fax 07 3266 4929

Web: <http://www.wia.org.au/vk4>
President Ewan McLeod
Secretary Bob Cumming
Treasurer David Gully

VK4ERM
VK4YBN
VK4DCG

EVERY SUNDAY, at 9am LOCAL (Sat 2300 UTC). From Far North Queensland On 7.070/2 MHz. From South East Queensland: 1.825, 3.605, 7.118, 10.135, 14.342, 21.175, 52.525, 147.000, 438.500 MHz. Right throughout VK4 scan 146.8 to 148.0 MHz again at 9am local. SUNDAY 6:45pm hear LAST week's QNEWS broadcast 3.605 and 147.0 MHz from South East Queensland. MONDAY 7:00pm hear YESTERDAY's news again on 146.875 MHz broadcast from Brisbane's Bayside repeater, and then 7:30pm on 3.605 and 147.0 MHz from St East Queensland. Text editions on packet internet and personal email, visit www.wia.org.au/vk4 News is updated 24/7 in both text and audio on this site. MP3 Audio from same website by 2300 hours each Saturday. Contact QNEWS, packet sp QNEWS@VK4WIE.BNE.QLD.AUS.OC email qnews@wia.org.au

Annual Membership Fees. Full \$95.00 Pensioner or student \$81.00. Without *Amateur Radio* \$63.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992

web: <http://www.sant.wia.org.au>
email: peter.reichert@bigpond.com

President Trevor Quick
Secretary Peter Reichelt
Treasurer Trevor Quick

VK5ATQ
VK5APR
VK5ATP

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'RealAudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full \$91.00 Pensioner or student \$76.00. Without *Amateur Radio* \$61.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873

Web: <http://www.wia.org.au/vk6>
e-mail: vk6@wia.org.au

President Neil Penfold
Secretary Roy Watkins
Treasurer Bruce Hedland-Thomas

VK6NE
VK6XV
VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.200 (R) Catby, 147.350 (R) Bussellton, 146.900 (R) Mt William (Bunbury), 147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz: country relays on 146.900, 147.000, 147.200, 147.250 and 147.350 MHz. Also in 'Real Audio' format from the VK6 WIA website

Annual Membership Fees. Full \$71.00 Pensioner or student \$65.00. Without *Amateur Radio* \$39.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)

Web: <http://www.wia.org.au/vk7>
e-mail: vk7tdg@wia.org.au

President Phil Corby
Secretary Dale Barnes
Treasurer Dale Barnes

VK7ZAX
VK7DG
VK7DG

VK7WI: At 0930 hrs every Sunday on 146.700 MHz FM (VK7RHT, Hobart) and relayed on 147.000 MHz FM (VK7RAA, Launceston), 146.625 MHz FM (VK7RMD, Ulverstone), 146.750 MHz FM (VK7RNB, Ulverstone), 147.075 MHz FM (VK7RWC, Rosebery), 3.57 MHz LSB, 7.090 MHz LSB, 14.130 MHz USB and UHF CB Channel 15 in Hobart area.

Annual Membership Fees. Full \$90.00 Pensioner or student \$77.00. Without *Amateur Radio* \$57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet

The pressure is on Tony Langdon VK3JED as he looks for the next hidden transmitter.



Learning new skills is Tatyana Karaseva of Kazakhstan, under expert instruction from Steve Dick VK3NMA of the Australian Boomerang Association.



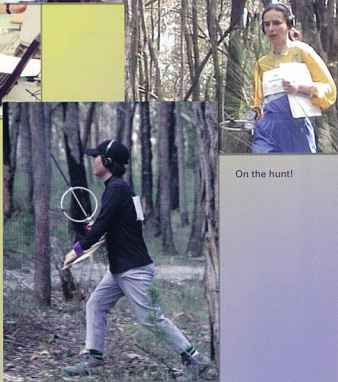
Working CW from the special event station VI3ARDF is Yoshi Kaneshige JR1CHU.



At the busy registration desk is, from left, Susan Longayroux, John Longayroux VK3ZJH and Stephen Weiss.



Showing the flag after being presented individual and team medals for the Open Men's 80m event are (left to right) Mark Diggins VK3JMD, Adam Scammell VK3YDF and Tony Langdon VK3JED.



On the hunt!

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